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Different for Dads? The association between paternal OCD, parenting and child functioning

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Different for Dads? The association between paternal OCD, parenting and child functioning

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2008-2012

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*Submitted in partial fulfillment of the requirement for the degree of
Doctorate in Clinical Psychology.*

Abstract

This thesis aims to add to the literature on psychological factors in the development of OCD and the impact of paternal OCD on children. It is concerned with examining parenting style and behaviours in fathers with OCD as a potential route to OCD 'transmission' and psychological distress in their children as well as examining the perceived impact of having OCD on parenting. It follows from a preliminary study by Challacombe & Salkovskis (2009) examining these factors in mothers with OCD. Fathers have received little attention in psychological research, yet emerging evidence suggests their role in child rearing and effect on children in the case of psychological disorder may be different to that of the mother. 14 fathers with OCD were compared to 20 healthy control fathers. Perception of impact of OCD on parenting was ascertained by questionnaires given to fathers and mothers. Measures of general parenting behaviours and parenting in OCD-specific scenarios, involvement in parenting and levels of expressed emotion (ascertained using a speech sample) were compared to control fathers. Parents also completed questionnaires on their child's general well being, and children completed questionnaires measuring anxiety and OCD related symptoms. Findings revealed that fathers viewed OCD as having a significant impact on their parenting, to a greater degree than mothers. Fathers' perception of impact was unrelated to self-reported OCD severity. Although thematic analysis of speech samples revealed fathers' concern about the effect on their children, their offspring showed no elevated rate of OCD symptomatology. However they showed lower social and school competence, greater social problems, significantly increased internalising problems and increased anxiety, including separation anxiety and panic. Whilst fathers with OCD showed higher rates of expressed emotion, there were no differences in general or specific parenting behaviours, nor clear associations between aspects of parenting and child functioning. Findings are discussed in the context of social learning theory and the role of the father in facilitating social exploration and development. Clinical implications are also discussed.

To my beautiful second son Nicolai, whose first six months of life have had this thesis looming large, dividing and distracting mummy's attention. You can have it all now.

I, Rebecca J Chilvers confirm that the work presented in this thesis is my own

Signature.....

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1 Introduction

In Obsessive Compulsive Disorder (OCD) as in all anxiety disorders, there are two main areas of research: first, investigation of factors involved in its maintenance, which have direct relevance for its treatment; second, investigation of factors related to its aetiology and development, which are relevant to primary and secondary prevention that to date have received far less research attention. Two main perspectives have been taken: biological and psychological. Psychological approaches have been particularly successful in identifying clear maintenance factors characteristic of OCD that give rise to very successful treatments. Biological approaches have focused predominantly on aetiological factors with a considerable volume but limited success. Very little work has examined the interaction of psychological and biological factors, probably due to the failure to consistently identify biological mechanisms in the disorder.

In general understanding the aetiology and development of anxiety disorders still poses a challenge for research with these factors being particularly poorly understood for Obsessive Compulsive Disorder (OCD). The multiple findings of general effects of parental psychopathology on children such as elevated levels of anxiety or depression are important, but do not speak to putative mechanisms of disorder specific development and to the extent to which it is relevant, intergenerational transmission. A better understanding of aetiological and developmental factors is important not least because this could inform effective prevention strategies.

As parents are particularly central to a child's environment from the earliest stages of development, this thesis aims to examine the role of parental style and behaviours on the likelihood of children developing OCD. Its focus in particular is on the role of the father, as 'parent' has been synonymous with 'mother' in the large majority of parenting research. The specific contribution fathers' psychopathology makes to its development in their children has only recently been investigated, and

early findings suggest the role of the father in the rearing of children operates differently to the role of the mother. This study aims to examine the associations between paternal OCD, parenting and child functioning with the aim of a) exploring the perception of the effect of OCD on parenting b) examining the actual impact of having OCD on parenting style and specific behaviours (such as relevant modelling, encouragement of avoidance and so on) c) examining the association between these factors and children's functioning and general well-being.

The following introduction begins by reviewing the prevalence and nature of anxiety disorders, particularly OCD. It then examines psychological routes to the transmission of anxiety, with particular focus on its familial pattern. Findings relating to general parenting style and specific parenting behaviours relevant to the transmission of anxiety are examined, with a further section on the association between parenting and the development of OCD in children. Finally what is known about the role of fathers in typical development and the development of anxiety is reviewed.

1.1 Prevalence and development of anxiety disorders

Anxiety disorders are the most common mental health conditions and affect significant proportions of the population (Ravindran and Stein 2010) with figures suggesting up to 13% of the population are affected at any one time (approximately 8 million people in the UK). There is accumulating evidence that anxiety disorders in children are some of the earliest of all forms of psychopathology and the most frequent (Beesdo, Knappe et al. 2009). Six to twelve month prevalence rates of anxiety disorders in children vary between 10-20% with lifetime rates being only slightly higher (Sakolsky and Birmaher 2008). Many disorders manifest before the age of 12 years (Last, Perrin et al. 1996) and continue into adolescence as the same, or a related anxiety disorder (Bittner, Egger et al. 2007), supporting the assertion that anxiety disorders exhibit a persisting course (Beesdo, Knappe et al. 2009). Lifetime prevalence of all anxiety disorders except social phobia is higher in females

than males and the incidence of 'pure' anxiety disorders decreases with age, with multiple anxiety disorder patterns by late adolescence (Masi, Millepiedi et al. 2005). One explanation of this effect is that the impact of anxiety disorders, contributes to secondary anxiety and non- anxiety related disorders such as depression.

1.2 Epidemiology and impact of OCD

OCD is currently defined as an anxiety disorder in DSM-IV, and is one of the most incapacitating conditions according to the World Health Organisation. The widely agreed criteria for diagnosis require that the individual have either obsessions or compulsions or both. *Obsessions* are recurrent, persistent ideas, thoughts, images or impulses that intrude into consciousness and are experienced as senseless or repugnant. They occur against the individual's will and typically the individual attempts to resist or get rid of them. In contrast to psychotic phenomena, the individual realises the thoughts are their own. They typically cause marked anxiety, distress or discomfort, which is particularly important in understanding OCD's phenomenology given that intrusive thoughts with potentially distressing content occur frequently and without causing distress in large percentages of the population (Rachman and de Silva 1978). There has been much work on the nature of 'clinical' and 'nonclinical' obsessions, and another distinction made between clinical obsessions and normal intrusions is that the former are more persistent, more repetitive, cause distress and are harder to remove. *Compulsions* are repetitive, purposeful forms of behaviour carried out because there is a strong drive or urge to do so. The compulsive behaviour is designed to prevent or reduce anxiety or discomfort or to prevent a dreaded event or situation. Although OCD can occur with a lack of insight, affected individuals typically realize their compulsions are excessive.

There is much research and debate concerning subtypes of OCD, multidimensional approaches to symptoms and OCD-related spectrum conditions although this will not be addressed explicitly in this thesis.

Lifetime prevalence of OCD is thought to be between 1-4% of the general population (Weissman, Bland et al. 1994; Geller 2006). It is a chronic disorder where there are often some features in childhood (March, Franklin et al. 2001; Heyman, Mataix-Cols et al. 2006). OCD that begins in childhood is associated with a higher risk of other psychiatric disorders in adult life, including other anxiety disorders and affective disorders (Wewetzer, Jans et al. 2001). However there are significant methodological difficulties with some of this research concerning the onset of actual OCD and common 'symptoms' which may be found in large proportion of the population that do not go on to develop into OCD or put them at elevated risk. Similarly there is a percentage that have early symptoms or disorder from which they recover, who would not be represented in clinical population studies. Epidemiological studies in community samples (Torres, Prince et al. 2006) have found overall weighted one month prevalence of 1.1% which reduces by age.

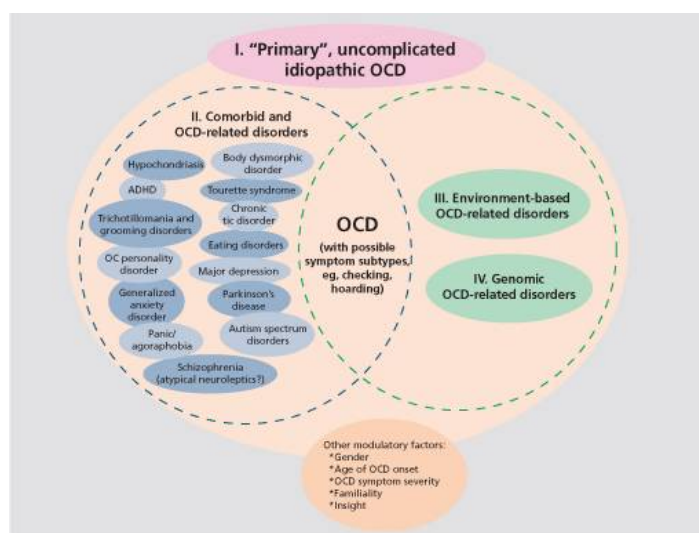
Given these prevalence rates there are a large number of individuals with OCD who will experience the disorder during the years in which they may have children, including parents who will develop the disorder at the time of their children's birth (Abramowitz, Moore et al. 2001) or during pregnancy (Abramowitz, Schwartz et al. 2003). Based on current population estimates in the UK, 1.2 million individuals of child-bearing age are affected by OCD to some degree, with effects on parenting forming only a small literature to date.

In comparison with the 1-4% rate in the general population, family studies of OCD have found a significantly higher proportion of first- degree relatives (15-36%) are affected by OCD (Lenane, Swedo et al. 1990; Riddle, Scahill et al. 1990; Liakopoulou, Korlou et al. 2010) leading to the assertion that OCD is familial and some assert highly heritable (Pauls, Alsobrook et al. 1995; Grabe, Ruhrmann et al. 2006; Mathews, Nievergelt et al. 2007). A distinction between 'heritable' and 'familial' is important as patterns in families are most likely to be due to a complex combination of as yet unknown heterogeneous genetic factors (Pauls 2010) and environmental influences, of which aspects of family life are likely to be highly significant.

Relatives of OCD sufferers are also significantly likely to show raised psychiatric comorbidities such as anxiety and depressive disorders in addition to OCD symptomatology (Bienvenu, Samuels et al. 2011) with rates of anxiety disorders highest among relatives of early onset obsessional patients (Black, Noyes et al. 1992). Interestingly rates of OC symptomatology have been found to be higher in proband's fathers than mothers, with fathers more likely to have clinical OCD and mothers to have subclinical symptomatology (Thomsen and Mikkelsen 1995; Liakopoulou, Korlou et al. 2010), although some findings have found the opposite (Calvo, Lazaro et al. 2007). There are no known large-scale epidemiological studies that have examined the rate of OCD in children of affected parents.

The rate of comorbidity with other psychiatric disorders in OCD is high. Recent research has produced comorbidity figures of around 70% for OCD in children and adolescents (Walitza, Melfsen et al. 2011), with differing comorbidities according to age in this population. Comorbidities in children prior to puberty are most commonly Attention Deficit Hyperactivity Disorder (ADHD) (34-50%) and tics (26%). After puberty depression and anxiety are more common (Mancebo, Garcia et al. 2008). However comorbidities are broad, and include neurodevelopmental disorders, conduct related disorders and affective/anxiety disorders (Leonard, Freeman et al. 2001). In adults with OCD comorbidity rates are reported at around 75% (Fireman, Koran et al. 2001) with some researchers making a case for subtyping on the basis of comorbidity (Nestadt, Di et al. 2009), and in linking types of OCD symptoms with associated comorbidities (Hasler, LaSalle-Ricci et al. 2005) e.g contamination and cleaning compulsions linked with eating disorders. Murphy, Timpano et al. (2010) make a number of distinctions between possible etiologies and commonly found comorbidities in all 'subtypes' of OCD (See Figure 1 below).

Figure 1 OCD comorbidities (with proposed separate etiological pathways)



In terms of impact on sufferers' lives, functional impairment as a result of OCD is an important area to consider. It is a difficult question to address due to such high comorbidity rates and differing severities of the disorder itself. Huppert, Simpson et al. (2009) found those with OCD had significantly poorer quality of life (QoL) than healthy controls, and those with comorbidities to have a poorer QoL than those without. Depression in particular was found to make the largest difference in terms of differentiating moderate to severely impaired QoL in OCD sufferers. Interestingly certain types of OCD symptoms, namely obsessions, washing and hoarding were more related to QoL than checking ordering and neutralizing. Quality of family life was significantly impaired in those with current OCD and in those with another primary psychiatric disorder with comorbid OCD, a finding not evident in an OCD-remission group. Of relevance to this study the presence of OCD is known to have a significant largely negative effect on quality of family life (Waters and Barrett 2000; Grover and Dutt 2011) and critically perceived (Huppert, Simpson et al. 2009) and actual parenting practices (Challacombe and Salkovskis 2009). Effects on parenting will be examined in more detail in section 1.6. The one qualitative study by Griffiths, Norris et al. (2011) which has examined the children's perception of the impact of OCD in a parent (although notably only one child had a father with OCD) found that

OCD placed a similar burden on children to that of adult relatives of sufferers (Laidlaw, Falloon et al. 1999). Children took a 'parentified child' role, often supporting their parent, accommodating symptoms, avoiding triggering stimuli and giving reassurance. They also felt over-protected, restricted and manipulated by their parents and had worries about developing OCD themselves. This study does however have significant limitations in terms of its representativeness, therefore the generalizability of the findings should be treated with caution.

1.3 Developmental psychopathology perspectives on anxiety disorder emergence including OCD during childhood

A developmental psychopathology perspective has helped provide a conceptual framework in which to study childhood anxiety (Wood, McLeod et al. 2003). Rather than see genetic or biological approaches as separate to those that emphasize the role of the environment, a more sophisticated synthesis of risk and protective factors in internal and external domains has arisen, largely due to the complexity of accounting for childhood anxiety phenomena and development. Conceptually it is important to acknowledge that no one factor will produce the same effect in a child irrespective of the other factors in operation (*multifinality*) e.g. the failure of a theory of classical conditioning to explain all cases of phobia. Equally, diverse and separate pathways may lead to the same outcome or disorder (*equifinality*). This is of interest as it allows exploration of potential necessary or sufficient routes of which parenting experience may be one. It is also important to consider that prior to the onset of clinically recognized pathology there may have been certain developmental pathways that represent adaptational failures that increase the probability of future pathology. Therefore whilst change is possible and a pathway for any child is not 'set' given the occurrence of certain factors, the ability to adapt may still be constrained by them (Carlson and Sroufe 1995).

1.4 Routes to transmission of anxiety

Extensive research has shown that children whose parents have a psychiatric disorder are at risk of psychological, social and developmental problems (Cooklin 2006; Mordoch and Hall 2008). Children whose parents have mental illness seem to be at increased risk of psychiatric illness through an increased likelihood of carrying certain risk genes, and the influence of parental psychiatric illness on the environment (such as increased risk of exposure to adverse life events) (Caspi, Sugden et al. 2003). Parental psychiatric disorders may also influence children through gene-environment correlation and epigenetic effects (Ramchandani and Psychogiou 2009). Children often struggle to cope and understand parental problems (Stallard, Norman et al. 2004) and experience a negative emotional impact (Black, Gaffney et al. 2003).

Family studies have shown a considerable overlap between anxiety disorders in family members. Children of parents with anxiety disorders have elevated rates of anxiety disorders (Biederman, Rosenbaum et al. 1991; Beidel and Turner 1997; Merikangas, Dierker et al. 1998) and rates of anxiety disorders in some studies showed that not only were they elevated compared to normal controls but also in relation to other psychiatric groups which suggests transmission of anxiety may be *specific*. Mechanisms of transmission however are still poorly understood and have not been the main focus of psychological approaches. Three potentially overlapping routes have been suggested: a) genetic transmission of traits or vulnerabilities to traits (Eley, Bolton et al. 2003; Hettema, Neale et al. 2006); b) the transmission of general stress or anxiety as a product of living with an anxious parent through factors such as parenting style (Hirshfeld, Biederman et al. 1997); and c) transmission of specific symptoms/traits through observation of parental fears and the modelling of specific anxiety behaviours (Watt and Stewart 2000).

1.4.1 Genetic and neurobiological factors

Despite the explosion of genetic studies, many are fraught with methodological difficulties and variabilities that make conclusions difficult to draw. Heritability of anxiety disorders themselves is relatively modest at 30% (Kendler, Neale et al. 1992) and this is viewed as an overestimate by some (Bögels and Brechman-Toussaint 2006). Over 80 candidate genes have been identified for OCD, with none reaching genome wide significance, and only one finding being replicated across studies (Pauls 2010). A study by Trzaskowski, Zavos et al. (2011) using 3500 twin pairs supports a 'general genes' hypothesis (Plomin and Kovas 2005), that is, the influence of genes tends to be broad, acting across time and phenotypes whereas environmental influences are more time and phenotype specific (resulting in one disorder or cluster of symptoms/traits rather than another). This view reflects the developmental model outlined in section 1.3.

Neurobiological models such as serotonin and or dopamine-based models of OCD are founded on the often limited and still unexplained response of serotonin reuptake inhibitors or antipsychotic therapy (Hoffman 2011). Despite the proliferation of studies in the area linked to the rise in popularity of biological theories of OCD etiology, there are many difficulties. Methodologically much work is in the animal domain, and there is considerable debate as to the accurate parallel between simple animal behaviour defined as 'compulsive' (e.g. a rat entering the arm of a maze repeatedly) and OCD. Even when components of OCD are modeled and linked to an elevated neurotransmitter level, it is unclear whether that elevated level is causal or a product of behavioural change. As OCD is infinitely more complex and varied than a single repetitive behaviour or stereotypy it is also clear the neurobiological models need to echo this complexity, and make stronger methodological arguments for the *causality* of neurotransmitter dysfunction in OCD.

1.4.2 Temperamental factors

A growing literature suggests that personality traits or temperamental factors may be risk factors for anxiety disorders and may also serve as endophenotype markers. Behavioural inhibition (BI) (a temperamental *style* of behaviour characterised by high levels of restraint, withdrawal, avoidance of novelty and increased physiological reactivity when confronted with unfamiliarity or potential threat) has been consistently identified as a general risk factor for the development of anxiety (Chorpita and Barlow 1998). In relation to OCD specifically Coles, Schofield et al. (2006) found that retrospective reports of behavioural inhibition significantly predicted levels of OCD symptoms in adulthood and that the strength of association between BI and OCD is of a similar magnitude to that of BI and social anxiety.

In addition to BI a number of other temperamental factors have been associated with anxiety disorders including OCD such as perfectionism and neuroticism (Hur 2009). Higher rates of neuroticism have been found in relatives of OCD probands compared to control relatives (Samuels, Nestadt et al. 2000). However, neuroticism is also associated with a range of other psychiatric disorders suggesting poor specificity. Perfectionism has been specifically associated with OCD (Chik, Whittal et al. 2008; Lee, Prado et al. 2009) across many theoretical perspectives for over a century. Some cognitive theorists have suggested perfectionism leads to many core beliefs and assumptions specific to OCD (Freeston and Ladouceur 1997) and it has been identified as one of six major domains of obsessional beliefs by the Obsessive Compulsive Cognitions Working Group (1997). Perfectionism is also a personality trait associated with OCD severity (Wetterneck, Little et al. 2011) and is associated with certain OCD symptoms more than others such as need for symmetry (Wheaton, Abramowitz et al. 2010). Perfectionism also links to other OCD cognitive factors such that doubts about actions have been conceptualized as a component of perfectionism and it is has also been linked to tolerance for uncertainty.

Perfectionism has been found to be elevated in family members of OCD patients compared to controls and other psychiatric groups (Allsopp and Verduyn 1990), and found to characterise family members of OCD sufferers (Clark and Bolton 1985). Perfectionism is also a trait that has been linked specifically to parenting and the development of anxiety although findings have been mixed (Frost and Steketee 1997; Cook and Kearney 2008). One of the difficulties apparent in research relating to perfectionism is whether it serves as a vulnerability factor or is secondary to OCD symptoms. Findings in this current study that show significant temperamental differences would support the importance of general traits in anxiety disorder development rather than specific symptom approaches.

1.5 The role of parenting in anxiety disorders

Shared environment has been shown to account for a significant amount of variance in childhood anxiety symptoms and disorder (Ely 2001). As parents are particularly central to a child's environment from the earliest stages of development there has been a large focus in the literature on the influence of parenting on the development of anxiety e.g. the work of Gruner, Muris et al. (1999) and Whaley, Pinto et al. (1999) and is the focus of this thesis in terms of how it may influence the development of general and/or specific psychopathology in children of fathers with OCD. Parenting can be seen as multidimensional and as having a number of qualities that can influence the development of anxiety in different ways. This section will review: 1) child-parent attachment, 2) expressed emotion, both linked to general stress and trait development and 3) the role of parenting behaviour.

1.5.1 Attachment

Attachment is a biologically-based system that is designed to promote proximity between the child and caregiver and serves the evolutionary purpose of protecting the child from danger. Therefore attachment status has been linked to the development of anxiety as it potentially forms the basis of a child's perceptions and behaviours relating to safety (Bowlby 1973; Brumariu and Kerns 2010). Attachment

behaviour (such as crying) is designed to elicit the proximity of the caregiver in the face of perceived threat (such as an unfamiliar situation) or discomfort. It is a continually active system (Main 1999) and a child can build internal working models for each caregiver based on their attachment-caregiving experiences. As such, it is possible to develop a different attachment to the mother and father.

Of the three types of attachment originally identified by Ainsworth and colleagues (Ainsworth, Blehar et al. 1978) 'Insecure-ambivalent attachment' (infants that respond to their caregivers' departure with intense distress and show proximity seeking and interaction-resisting behaviours on the caregivers' return therefore giving an impression of ambivalence and are slower to be soothed than securely attached infants) is explicitly associated with anxiety. It would be expected that infants with this type of attachment are significantly more likely to build internal working models of the world that make them prone to anxiety symptoms. Indeed these children have been found to have a poorer capacity for self-regulation, and are less able to respond flexibly and resourcefully to changing demands (Verschueren, Marcoen et al. 1996), characteristics that increase anxiety vulnerability. Some studies have shown a relation between insecure attachment and anxiety sensitivity (Verschueren, Marcoen et al. 1996) and a recent review by Brumariu and Kerns (2010) reported evidence for a relation between child-parent attachment and internalising symptoms both in childhood and adolescence, where anxiety and attachment become more stable. Several other longitudinal studies have also found that insecure attachment at one year is predictive of anxiety problems in later life both in early childhood (Barnett, Schaafsma et al. 1991) and late adolescence (Warren, Huston et al. 1997).

As this thesis is concerned with fathers, it is interesting to note that there is a paucity of research which looks at the role of paternal attachment, despite the acknowledgement that children can form different attachment relationships with their mothers and fathers, and that fathers can have an effect on the nature of the mother-child attachment and mother's sensitivity to their children (Cohn, Cowan et

al. 1992; van and De Wolff 1997). An examination of Bowlby's original theory highlights two factors that influence an individual's ability to form affectional bonds, 1) the extent to which a child's caregivers provide him with a secure base and 2) the extent to which they encourage him to explore from it. It is now thought that the father's role may be more closely linked to 2) providing support in the exploratory side of the child's attachment and psychological security during play and exploration and therefore poorly captured in current attachment measures (Waters and Cummings 2000). Fathers' play sensitivity has been suggested as a potentially important predictive factor for children's coping with anxiety (Bögels and Brechman-Toussaint 2006). Some studies have found there is an importance to child-father 'closeness' as a protective factor against anxiety in young adulthood (Summers, Forehand et al. 1998) but this is not tightly conceptualized as 'attachment' and therefore there is a danger of inaccurate extrapolation of findings. The differing role of fathers in relation to child development and the etiology of child anxiety is examined in more detail in section 1.9.

Lamb (1980) reasoned that father-child attachment affects the child's orientation and approach to novel social situations. In keeping with this finding Verschueren, Marcoen et al. (1996) found that child-father attachment rather than that with the mother was related to teacher reports of anxious/withdrawn behaviour in children, and it has also been related to the degree of autonomous behaviour shown in children. Therefore it could be tentatively concluded that attachment between fathers and children, even under its current classification has a protective role to play in the development of anxiety. Whilst this thesis does not measure attachment explicitly, it does examine a measure of child-father relationship, which (from the father's perspective) may be a tentative proxy for attachment status.

1.5.2 Expressed emotion

In considering the transmission of psychopathology in families, the construct of expressed emotion (EE) has been particularly important. EE is a method of

measuring family members' responses to an individual and refers to a family member's expressed criticism, hostility and/or emotional over-involvement (EOI). EE is seen to reflect the emotional quality of interactions between individuals and is a general risk factor for a wide range of psychopathology as well as high maternal EOI showing association with anxiety disorders. Measures of EE are considered to be less prone to bias than self-report in tapping aspects of parenting known to be linked to childhood anxiety, such as an overinvolved or more specifically an overprotective parenting style (Chorpita and Barlow 1998; Rubin, Coplan et al. 2009). Such parenting styles are also associated with withdrawn and inhibited child behaviour (Fox, Henderson et al. 2005) which can cause the child and parent to fall into a cycle where the inhibited behaviour of a child elicits more protective parenting which leads to the child being more inhibited and so on. This is an important area of research developmentally given that behavioural inhibition may precipitate other forms of psychopathology (Caspi, Henry et al. 1995). Indeed one criticism that can be leveled at much of the EE literature is that it deals at a disorder level rather than examining the more complex effects on children that are relevant to the pathways that may lead to disorder, or phenomena seen in sub-clinical populations.

Associations between high EOI and child anxiety disorders have also been found in an epidemiological sample (Stubbe, Zahner et al. 1993). Other research has indicated a relationship between child anxiety and critical parenting (Fox, Henderson et al. 2005) but it seems the relationship is stronger for overprotection (Rapee 1997; Wood, McLeod et al. 2003) which has led to the view that whilst EOI and criticism may be related to internalizing disorders more broadly, EOI is specific to anxiety. Again, of relevance to this study, there is almost no literature regarding paternal EE and child psychopathology.

There is very limited research in relation to parental EE and the development of OCD specifically, with most studies focusing on whether EE predicts treatment outcome for those who have already developed the disorder. Reports from anecdotal evidence suggest that family members' emotional and behavioural responses to OCD

symptoms may influence its severity (Skeketee, VanNoppen et al. 1998; VanNoppen and Skeketee 2003). A study by VanNoppen and Skeketee (2009) which examined EE in fifty OCD patients and their relatives found that patients who perceived their relatives as either critical or hostile were more likely to have more severe OCD symptoms. Higher rates of EE were also found to exacerbate OCD symptoms (Bressi and Guggeri 1996). High EE and a high rate of psychiatric disorder were found by Hibbs, Hamburger et al. (1991) in children with a range of disorders including OCD. Both fathers and mothers with a psychiatric diagnosis had a significantly higher rate of high EE than parents without a diagnosis, which suggests parents with OCD would potentially be more likely to express high EE than those without. A further study compared 49 children with OCD to 41 control children and parental EE as measured by the Five Minute Speech Sample (FMSS). Magana, Goldstein et al. (1986) found that children with OCD were less likely than normal children to have both parents exhibit low EE, and that EE explained 5% of the variance in the child's diagnostic status. This study did not report however what aspects of EE played an important role. What is often unclear is the directionality of EE in parents and symptoms in the child, and to what degree high EE interacts with other factors in and outside the family.

1.5.3 Parenting styles and behaviours, beliefs and general anxiety

The role of parenting practices in the development of anxiety in children of parents with anxiety disorders has received a lot of attention in research (McLeod, Wood et al. 2007; Hudson, Doyle et al. 2009; Reitman and Asseff 2010), partly due to desire to create parent-focused interventions in its treatment. Many studies have shown the moderate to strong relationships between parenting practices, elevated levels of trait anxiety and an increased likelihood of anxiety related disorders amongst children of anxious parents. Whilst this review focuses on parent-to-child transmission, it must be remembered that bi-directional influences are also possible, that is an anxious child could elicit more anxious parenting (Schrock and Woodruff-Borden 2010).

Parenting has been hypothesized to relate to the development and maintenance of anxiety in two main ways (Craske 1999). General parenting across contexts is referred to as *parenting style*, and is hypothesized to provide an environmental context that influences the development of trait anxiety in a largely nonspecific manner. Amongst those children with high trait anxiety, *specific parenting behaviours or practices* that promote or reinforce children's experiences of anxiety in specific situations contribute to the development of a particular anxiety disorder by focusing the development of beliefs about a specific theme or class of stimuli. Reviews of the literature have found little support linking parenting style with trait anxiety, however parenting behaviours appear to have a greater effect on some anxiety traits and development of anxiety disorders (Wood, McLeod et al. 2003), and may be crucial in shaping which *particular* anxiety disorder is developed by the child (Rapee 2002), and is therefore of particular interest for this thesis.

1.5.3.1 Findings relating to general parenting style

Research on parenting style has focused mainly on the dimensions of *acceptance* and *control/granting of autonomy*. Findings have been mixed and have been methodology dependent in many cases. *Acceptance* refers to a general parenting approach characterized by warmth and responsiveness in interactions. The review of expressed emotion in section 1.5.2 reviews some factors that fall under this heading. It is thought that acceptance of negative emotional expression and behaviours rather than criticism helps children to develop emotion regulation strategies that may in turn reduce their sensitivity to anxiety (Gottman, Katz et al. 1997). Observational studies have shown the strongest relationships between parental accepting behaviour and child anxiety with the strongest relationship between maternal criticism and child anxiety. However the picture is more complex in some critical studies. For example Whaley, Pinto et al. (1999) found that maternal anxiety status significantly predicted warmth during an interaction with their children, but that when child anxiety status was also considered, maternal anxiety significantly

predicted maternal autonomy granting. In other words, there was clear evidence of mothers changing their behaviour as a function of child anxiety. Indeed an interesting study by Lindhout, Markus et al. (2009) which compared parenting behaviour in anxious children, non-anxious siblings and controls found that parents delivered more negative affect and were more critical towards their child with an anxiety disorder than their non-anxious siblings and controls, a finding mirrored by Hudson, Doyle et al. (2009).

Control is defined as 'a pattern of excessive regulation of children's activities and routines, autocratic parental decision-making, overprotection, or instructions to children on how to think or feel' (Barber 1996). Despite the broad range of this construct in terms of parenting styles, factor analysis studies have shown they form a cohesive grouping that affects children's experiences of mastery over the environment and increases their dependence on parents. Lack of mastery is proposed to contribute to high trait anxiety by creating a cognitive bias that leads to events being perceived as out of one's control (Chorpita and Barlow 1998). Although the association between parental control and child anxiety in observational and retrospective studies has been well-documented (Dadds, Barrett et al. 1996; Hudson and Rapee 2001) the construct has also found to be relevant to the development of other childhood disorders such as depression (Rapee 1997) which suggests a lack of specificity when attempting to understand what drives the development of anxiety in particular. Research with the aim of modelling anxious response styles in children which takes into account interactive effects, has found that parents who are more anxious are more likely to mirror negative affect in children as well as respond to their children with controlling behaviour. It is hypothesized this leads to a decrease in self-efficacy in children and avoidance of stimuli the child believes they cannot successfully deal with as a consequence. Avoidance on the child's part may then serve as reinforcement for the parent's controlling behaviours as well as decrease opportunities for learning and developing adaptive coping mechanisms. Therefore it

is suggested cycles of anxious behaviour are perpetuated by controlling behaviours in parents and avoidance in the child (Williams, Kertz et al. 2012).

An additional term used to describe a combined parenting style that is low in warmth/nurture and high in control, showing high rigidity and rule-bound adherence is 'Authoritarian parenting', first conceptualized by Baumrind (1971). Whilst this has been linked with a range of negative outcomes including low self-reliance, less active coping and low self-worth it has also been associated with increased anxiety (Wolfradt, Hempel et al. 2003). It could be argued this combination is particularly 'toxic' given the absence of potential positive interactions in two critical domains.

1.5.3.2 Specific parental behaviours and their link to the development of anxiety

In contrast to the nonspecific effects of parenting style on the development of trait anxiety, context and behaviour specific parenting behaviours are posited to account for the development of specific anxiety disorders. Parents generally provide the greatest quantity of learning experiences to their children throughout development. A review of risk factors in the development of child anxiety by Fisak and Grills-Taquechel (2007) identified three learning mechanisms which are particularly relevant: 1) *Modelling* (vicarious learning), 2) *Transmission of information relevant to anxiety* (altering processing of stimuli relevant to anxiety disorders), 3) *Reinforcement of anxious/avoidant behaviours* (with resulting limited exposure to potentially feared stimuli).

Modelling

Interest in parental modelling of anxious/avoidant behaviour has drawn heavily from Bandura's social learning theory (Bandura 1986) that suggests children may learn anxious behaviour from their parents in a vicarious manner. In the same vein children have the ability to un-learn anxious behaviour by positive modelling (Kelly, Barker et al. 2010). The family unit is thought to play a crucial role in social learning during childhood. An important study by Muris, Steerneman et al. (1996) which

examined the association between parental modelling and child anxiety found that parents who responded 'always' to a single question "to what extent do you generally express your fears in the presence of your children?" had children who reported the highest fear scores in their sample. Parents who responded 'never' had children with the lowest scores. The relationship between answers to this question interestingly was only found for mothers, not fathers. Although the results are interesting, a single question does not provide a clear understanding of how modelling affects anxiety in any specific way. Some fascinating retrospective studies have found that parenting modelling of parental panic (Watt and Stewart 2000) and social anxiety symptoms (Caster, Inderbitzen et al. 1999) can play a role in the specific development of these difficulties in children, and not just the development of general/global anxiety symptoms.

Transmission of information relevant to anxiety

As information given to children by parents is highly influential, communicating danger with excessive frequency or intensity is another route to changing a child's perception of danger (Field, Argyris et al. 2001), development of anxious behaviour, and changes in automatic cognitive processing of stimuli that may extend over a long time period. In addition to cognitive effects, behavioural avoidance of stimuli for which danger/threat information is received has also been shown to be sustained over time, particularly in younger children (Field, Lawson et al. 2008). The transmission of threat related information has been shown to play a part in forming information processes biases in children that increase their vulnerability to developing anxiety problems (Field 2004).

Reinforcement of anxious/avoidant behaviours

Parental responses to child anxiety include both positive (e.g. receiving special attention) and negative reinforcement (e.g. removing child from fear source). Retrospective studies have found some evidence to support reinforcement of anxiety behaviours e.g. work by Ehlers (1993). Important work by Dadds, Barrett et

al. (1996) has also shown illustrated what he dubs the FEAR effect (Family Enhancement of Avoidant Responses), which essentially describes an avoidant responding style that reinforces anxiety. In turn, avoidant coping is likely to lead to limited exposure to feared stimuli that does not allow for habituation and disconfirmation of fears. In the context of a specific effect it is suggested that disorder specific patterns of reinforcement in parents serve to create behavioural cognitive and affective patterns in children, which may culminate in the development of the parental disorder in the child. Several of the parenting factors that are key in the *development* of anxiety in children may also serve to *maintain* it e.g overprotection, punishment and failure, leading to a potential increase in severity and chronicity in the child.

Zabin and Melamed (1980) developed a questionnaire to measure specific parenting behaviours relevant to the development of anxiety. They measured endorsement of positive reinforcement, punishment, use of force, reinforcement of dependency and modeling & reassurance and child's anxiety levels in mothers and fathers. Interestingly associations differed between parents, with child anxiety being associated with use of force in mothers and fathers, and use of punishment by fathers. This finding for punishment is predicted by early behaviorists who claimed that punishment 'evokes reflexes characteristic of fear and anxiety' (Skinner 1953; Bandura 1969). Another interesting finding for fathers but not mothers is the use of modelling and reassurance, which correlated significantly more strongly with reduction in child anxiety than in mothers. This may reflect the role of fathers outlined in section 1.9.1 and their role in the child's orientation and approach to novel situations. Reinforcement of dependency was associated with child anxiety for both parents.

1.6 Parenting related specifically to OCD

“What distinguishes OCD families from other families of the mentally ill is the inextricable way that they are brought into the illness. OCD symptoms are all-encompassing, and the compulsions involve family members and the home itself”
(Cooper 1996) p.297

Cognitive behavioural theories of OCD have hypothesized a central role of social learning in its development. It is thought that learning via key developmental relationships such as child-parent interaction may account at least in part for the emergence and maintenance of obsessive-compulsive symptoms (see section 1.7). This section reviews research that has made explicit links between parenting and OCD related behaviour and beliefs.

OCD significantly interferes with everyday activities and levels of impairment in OCD are comparable to those seen in psychotic disorders (Torres, Prince et al. 2006). Impairment is likely to interfere with key aspects of parenting identified in work by Bögels and Phares (2008) such as overprotection, intrusiveness or control, promotion of avoidance and so on as well as changing family behaviour to accommodate or assist the affected individual e.g. Calvocoressi, Lewis et al. (1995) and causing considerable distress in family members (Cooper 1996). OCD is an anxiety disorder that is particularly pervasive across contexts unlike others that may occur in specific situations. OCD symptoms are not often alleviated by being in the home or with familiar individuals and in many cases can be exasperated by the challenges of the home environment and family. In addition to actual impact on parenting, *perception* of being a capable parent who is able to meet the child's needs is also important as aspects of this perception have been associated with mothers' perception of their child's anxiety levels and child's actual social competence in daily living (Challacombe and Salkovskis 2009).

Studies examining parenting practices are largely retrospective or top-down in nature. Many are hampered by the use of general measures of child

psychopathology as outcome measures, rather than disorder- specific indicators that pose difficulties in identifying transmission of specific traits, behaviours and symptoms.

Whilst many studies have found little specificity in parenting variables in OCD patients compared with other anxiety disorders and depression (Merkel, Pollard et al. 1993; Vogel, Stiles et al. 1997) some have found associations in non-clinical populations: Ehiobuche (1998) found an association between high obsessiveness and rejecting, over-protective and emotionally less warm parenting, Smari, Martinsson et al. (2010) found parental overprotection by retrospective child self-report was predictive of OCD symptoms and inflated responsibility beliefs in a sample of 570 non-clinical young adults and Timpano, Keough et al. (2010) found obsessive compulsive symptoms and beliefs (such as the importance of personal responsibility) were significantly associated with reports of an authoritarian parenting style. In clinical OCD populations Alonso, Menchon et al. (2004) found OCD patients perceived higher levels of rejection from their fathers but the only OCD symptom that could actually be predicted by parental traits was hoarding, predicted by low parental emotional warmth. A study by Lennertz, Grabe et al. (2010) is methodologically superior to many in that it takes into account siblings' recounting of parenting as well as OCD sufferers'. They found those with OCD reported their parents to be less warm and more rejecting and controlling than controls. In an attempt to address the possibility that having a child with OCD may elicit less optimal parenting behaviours, they split their sample into early and late onset OCD and found no difference, supporting their conclusions that an adverse parenting style may serve as a risk factor for OCD. These studies however have almost exclusively been retrospective in nature, asking affected adults about their experiences of parenting as a child.

In contrast, Barrett, Shortt et al. (2002) used an observation rating scale to examine parenting styles and behaviours in parents of children with OCD compared to those with other anxiety disorders and controls. They found parents of children with OCD

to be less rewarding of independence, less likely to use positive problem solving and be less confident in their children's abilities than parents of children with other anxiety disorders and controls, suggesting these parenting behaviours were specific to the OCD group.

Of the few studies examining the effect on children (aged 7-18) of having parents with OCD, Black, Gaffney et al. (2003) found that having a parent with OCD was associated with emotional and behavioural disorders in their offspring, including OCD. OCD was present in 23% of OCD children versus 3% of controls over a two- year time period. Interestingly 'subclinical' OCD defined as 'the presence of obsessional thoughts or compulsive rituals that did not cause impairment or distress, or were not time consuming' was found in an additional 3% children of OCD parents and an additional 20% of control children. At a two year follow up diagnosis of OCD was not stable with children falling in and out of the diagnosis that indicates the 'waxing and waning' nature of symptoms. OCD offspring were more likely to develop internalising disorders of an anxiety nature, specifically overanxious disorder, separation anxiety disorder and OCD. The study concluded that in addition to the likely genetic effects, there may also be a general stress effect of living with a parent with OCD (general stress hypothesis) or parents may model dysfunctional behaviours or involve their children in rituals. However these suggestions are speculative as there was no direct examination of these behaviours in the parents therefore mechanisms of transmission of OCD traits remain unclear.

A study by Griffiths, Norris et al. (2011) which examined the effect on children of parents with OCD found that children frequently described difficult parenting behaviours such as overprotection and restriction such as being unable to bring friends to the house because their mother would fear it would make the home dirty, interference, such as coming into their room when they were asleep to clean their things and direct effects on their confidence and living skills as a result of lack of opportunities to take risks in and out the home (such as being unable to cook). Parentification of children was also described, where giving parents reassurance,

prevention of contact with OCD triggering stimuli and taking extra responsibility was common. Therefore direct links to parenting behaviours such as control, overprotectiveness, reinforcement of avoidance, lack of positive modelling when confronted with anxiety and likely transmission of information relevant to anxiety are found in this sample of offspring.

In the first prospective study to examine the effect of maternal OCD on parenting and children, Challacombe and Salkovskis (2009) found that OCD offspring did not exhibit more trait anxiety or exhibit OCD symptomatology, nor did they show greater general psychopathology with the exception of one measure of anxiety than children of mothers with panic and healthy controls. However when examining child-mother interactions it found mothers with OCD showed more anxiety, and they responded more punitively to displays of anxiety in their children. They also used more negative parenting methods (force and punishment) in response to OCD-related parenting scenarios than controls. OCD mothers also showed higher rates of EE than controls, but no specifically elevated rate of emotional over-involvement was found.

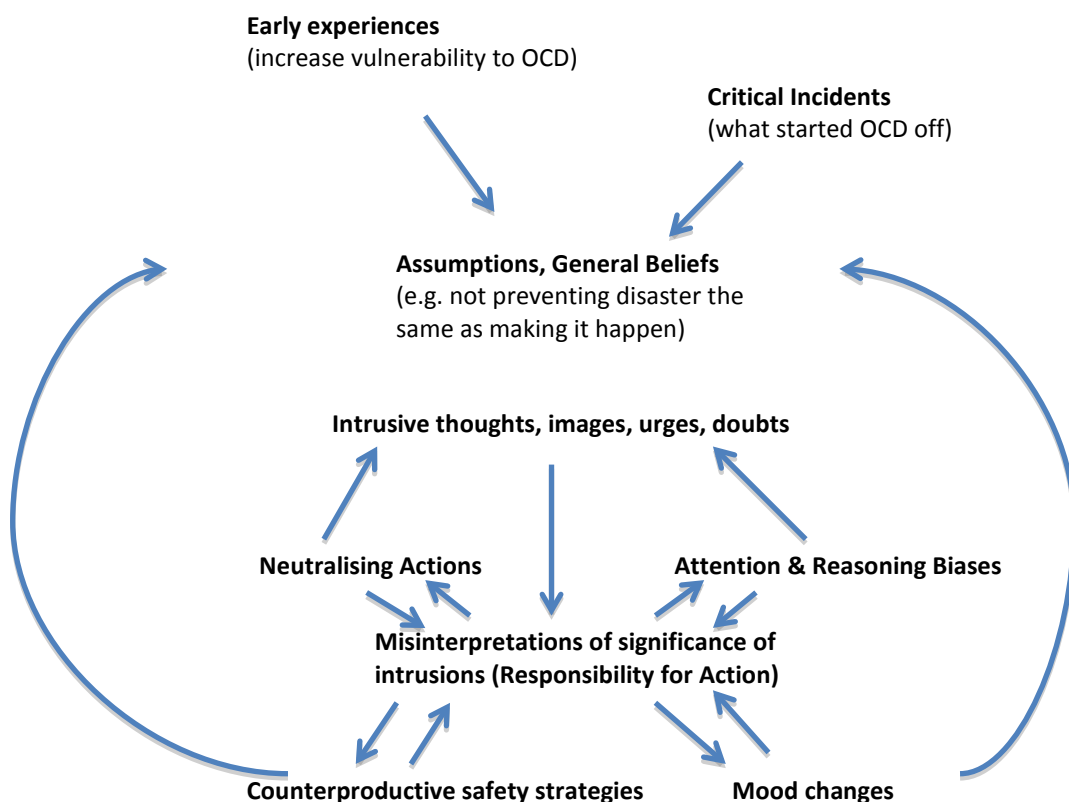
In summary, there is a body of evidence to suggest children of parents with OCD are impacted at a social and psychological level by their parents' disorder, with some studies showing an increased rate of OCD traits and symptoms. Whilst results are mixed, differences in parenting practices in parents with OCD (largely mothers), have been found across a range of methodologies as a possible mechanism, and links to theories of anxiety transmission provide some routes to explain how these practices may produce effects in offspring.

1.7 Cognitive model of OCD and the role of social learning

Central to the cognitive model of OCD (see Figure 2) is the premise that those with OCD interpret obsessional (intrusive) thoughts common in the non-disordered population as having a particular significance such as signaling danger to themselves or others and critically appraising that they may be *responsible* for bringing about or

preventing this danger. This responsibility appraisal, “the belief that one has the power which is pivotal to bring about or prevent subjectively crucial negative outcomes” (Salkovskis 1996) motivates a range of safety-seeking behaviours, mostly reactions intended to prevent or neutralize harm or diminish responsibility (Salkovskis and Freeston 2001). The specific interpretation of intrusions as indicating increased responsibility has additional effects including a) increased discomfort including anxiety and depression, b) the focusing of attention to intrusions and triggers for intrusion, c) increased preoccupation with the thought. Behavioural responses such as overt and covert neutralising, compulsive behaviour, avoidance, reassurance seeking, attempts to divert or dilute responsibility and sense of threat, and attempts to push the thought out of mind. These responses are counterproductive and they then reinforce the original faulty appraisal. Early experiences, which encompass a range of parenting responses are seen as critical to the formation of assumptions and beliefs that may drive the OCD process.

Figure 2 The Cognitive Model of OCD



1.8 Formation of beliefs and critical early experiences in childhood linked to the development of OCD

Salkovskis, Shafran et al. (1999) discuss the role and development of responsibility beliefs in childhood that are integral to most cognitive models of OCD. Generic cognitive theories of emotional problems emphasize the role of childhood experience in the formation of many attitudes and beliefs which may then go on to become dysfunctional at a later stage in life (Beck 1976). They suggest several routes of which critical and over-protective parenting is one, which might increase feelings of responsibility. Criticism is hypothesized to increase the subjective cost of being responsible thus leading to belief in catastrophic outcomes of actions that results in a negative outcome. Overprotection where excessive prevention of feared outcomes leads to beliefs that danger is imminent or highly likely can lead to responsibility being withheld from children such that they are never confronted with it. At later stages of development this can lead to excessive anxiety about danger and the need to prevent it now that the responsibility now falls to them, however they have not developed adaptive coping strategies to manage this sense of danger, or appraise it accurately. Strict codes of behaviour such as authoritarian parenting is also suggested as posing a risk factor during development, as it can lead to thought-action-fusion where responsibility for the thought is equivalent to the action having occurred or increasing the likelihood that it will. Given that accidents or incidents with a particularly bad outcome often occur in childhood (such as accidents where someone was hurt), the response of parents to the child's behaviour may also be critical in determining whether they feel personally responsible in bringing about an occurrence or failing to prevent it. Whilst an inflated sense of responsibility is not synonymous with developing OCD, Smari, Thornorsteinsdottir et al. (2010) showed that there is strong support for the mediating role of inflated responsibility between pathways to responsibility beliefs and OCD symptoms. Cognitive misappraisal which may be facilitated by particular parenting styles or exposure to parenting behaviour could form part of a route to the development of OCD in children, and may serve as a putative risk factor in sub-clinical populations at higher risk.

In reference to this study that examines parenting factors, there is an assumption that cognitive biases and behaviours that contribute to OCD may have a basis at least in part in the parenting practices a child is subjected to during development and may potentially enhance the development of OCD rated beliefs in certain environments (Pollock and Carter 1999) as outlined in section 1.6.

1.9 The role of fathers in child development

Much has been written about the influence of parenting which has in fact been a term used synonymously with 'mothering' in the majority of research. There has more recently been an acknowledgement of the significant involvement of fathers in parenting, but critically some findings that suggest that role may differ to that of the mother. This section briefly examines the role of fathers in typical development, then looks at their role in the development of psychiatric disorders in general, and finally their specific role in terms of the development of anxiety problems in their children.

1.9.1 Role in typical development

Several comprehensive literature reviews have recently highlighted the role of fathers in child development (Bögels and Phares 2008; Sarkadi, Kristiansson et al. 2008). This section will review the role of fathers with a focus on areas that have been suggested as relevant to the development of anxiety. Bögels and Phares (2008) describe four areas: 1) role in play, 2) attachment, 3) closeness/involvement and 4) indirect influence of their role through influence on the mother.

The nature of play between a father and infant has been described as different to the 'gentle' style of the mother, being more 'playful', physical, unpredictable and exciting. It is suggested that this type of interaction serves a socialization function, and help the development of autonomy and exploration (Ladan 1985). Interestingly when children were followed up later on in development paternal play was a

stronger predictor of social competence, peer acceptability and popularity in children (Parke, Dennis et al. 2004) and a further study found families where the mother had a main caregiver role with the father as a 'playmate' rather than when these roles were less clearly defined had children with better social skills who were more prepared for cooperation and competition (Paquette 2004). There is also evidence paternal play 'buffers' anxiety on separation from caregivers and when experiencing novelty, potentially by tolerance of increased arousal (produced by play and also present when afraid), a key difficulty in many anxiety disorders (Bögels 2006).

Literature on the role of attachment with regards to fathers is sparse and discussed in section 1.5.1

Studies show specific social, behavioural, cognitive and psychological benefits of having an engaged /involved father. In general father engagement reduces the frequency of behavioural problems in boys and psychological problems in young women. It enhances cognitive development in children and can decrease delinquency in lower social –economic status families. Certain aspects of a father's interaction with their child such as play contribute more than maternal behaviours to predicted social competence peer acceptance and popularity (Parke, Dennis et al. 2004). Therefore it is likely given the differential roles of mothers and fathers in parenting, alterations to changes in these roles as a result of psychopathology will lead to differing immediate and long- term effects.

Finally fathers are thought to play an indirect role by enhancing the quality of the mother-child relationship and increasing maternal sensitivity to their child. Interestingly the quality of the parental relationship also affects how appropriate mother's relationships are with their children, e.g. whether they treat their children like a partner (Crystal 1994).

1.9.2 Role of fathers in the development of psychiatric disorders in children

Until recently little attention has been paid to the role fathers' psychopathology has on their offspring, despite their active role in child-rearing (Ramchandani and Psychogiou 2009). However given their importance and somewhat differentiated roles, evidence is accumulating that suggests the impact may be significant and different in nature to that of maternal psychopathology. For example Bögels, Bamelis et al. (2008) showed that fathers with anxiety encourage less autonomy in their children, an effect not found in anxious mothers. Additionally differential effects of Post Traumatic Stress Disorder (PTSD) have been shown. Kilic, Ozguven et al. (2003) used regression analysis to show that after an earthquake mothers and fathers exhibited different psychological symptoms and that child psychopathology was related more to the father's than the mother's symptoms, which was particularly the case for irritability and detachment. A further study of survivors showed specific traumatic stress in the child was predicted by the traumatic stress of the father (and not the mother) whereas depression in the mother was related to depression in the child (Kilic, Kilic et al. 2011). Differential effects of paternal depression in offspring however have also been shown (Ramchandani, Stein et al. 2008). Research to date has focused mainly on the presence of externalizing disorders (Harvey, Danforth et al. 2003), and either makes links between psychopathology in fathers in a child's early years (for example post- nately) and later difficulties (Ramchandani, Stein et al. 2005) or association between a disorder in the father and in the child without a clear mechanism. Many studies simply use a father's involvement as a predictor of psychopathology, but this is uninformative in terms of actual parenting behaviours.

1.9.3 Role of fathers in the development of anxiety disorders

In bottom-up studies fathers of anxious children have been found to be more controlling and rigid, and in some studies were found to have more obsessive-compulsive and depressive symptoms than control fathers, a difference not found in

the mothers groups (Messer and Beidel 1994). Studies of socially anxious children have found that their fathers exhibit more control than non anxious children (Greco and Morris 2002), however results across studies using different methodologies are equivocal with some studies finding no association between paternal parenting and anxiety (Hudson and Rapee 2002).

Anxiety in fathers that does not fall under a particular diagnostic category has been shown to have specific effects on the relationships of children with ADHD and ODD with their fathers (Edwards, Barkley et al. 2001). Anxiety in fathers also affects the child's *perception* of them as a parent, perceiving them as less warm and more conflictual (Bögels, van Oosten et al. 2001; Kashdan, Jacob et al. 2004). Drawing from cross- sectional correlational studies child retrospective perception of anxious rearing behaviours of fathers rather than mothers has also been found to be predictive of anxious symptoms in older children (Brakel, vanMuris et al. 2006). Child anxiety has also been found to relate to paternal control, lack of affection, anxious rearing and paternal anxiety, although many studies do not find these relationships. There are also suggestions that the role of the father may differ over development, being more prominent in adolescence rather than childhood (Connell and Goodman 2002).

Bögels and Perotti (2011) have recently proposed a theoretical model of the development of social anxiety in children whose fathers have social anxiety. They reason that children place greater emphasis on the signals of social danger coming from the father, therefore if the father is very anxious or paternal behaviour is very influential within the family unit, the child will become anxious. They suggest that the mother may compensate by increasing care (in line with her proposed role as nurturer) but that this does not negate the social effect of anxiety in the father. Indeed it is suggested that increased care from the mother may have an unintended 'second hit' to the child by reducing their exposure to situations, thus maintaining their anxiety. The lack of exposure may serve to maintain social anxiety through generations as fears cannot be disconfirmed by contrary evidence.

The Kilic PTSD study (Kilic, Ozguven et al. 2003) is the only prospective top-down study to date that has examined the effect of identified anxious fathers on children, and PTSD is a disorder with a very different etiology, course and chronicity to OCD. Nothing is currently known about the specific effects of OCD in fathers on their parenting and children's wellbeing.

1.10 Hypotheses

Due to the paucity of prospective research on the effects of OCD on parenting and children, and the absence of prospective research examining the role of fathers specifically this study can be seen as somewhat exploratory. However the literature on parenting and transmission of psychopathology and the existing study on the effect of OCD in mothers (Challacombe and Salkovskis 2009) allows selected predictions to be made.

COCD= children of fathers with OCD, CCON= children of control fathers

Hypotheses relating to parenting

1. Given the high functional impairment seen in OCD sufferers, **it is predicted that fathers with OCD will view their own parenting as impacted by OCD and that overall impairment will be related to their OCD severity.** As no literature could be identified on partner's perceptions of parenting that is relevant to this area, no predictions are made, and this aspect can be seen as exploratory. In addition to quantitative analysis, non -hypothesis driven thematic analysis of the FMSS will be undertaken to explore themes relating to OCD and parenting expressed by fathers.
2. As certain parenting styles have been associated with the development of anxiety in children **it is predicted that in general parenting scenarios fathers with OCD will**

show greater endorsement of ‘reinforcement of dependency’ and ‘punishment’ parenting behaviours.

3. As more negative parenting behaviours have been reported in mothers with OCD in relation to OCD specific parenting scenarios **it is predicted in OCD specific scenarios fathers with OCD will show more ‘force’ and ‘punishment’ than controls.**

4. As parents with psychiatric disorders tend to show higher rates of EE, and children with OCD have parents with higher EE rates than controls, **it is predicted a higher rate of EE will be found in the OCD fathers.**

Hypotheses relating to child functioning

5. As a cumulative effect of parenting practices and environmental influences across development **it is predicted that COCD will show elevated OCD symptomatology and OCD related cognitions than CCON.**

6. As perfectionism is a trait found to be elevated in family members of OCD sufferers and also linked specifically to parenting differences **it is predicted COCD will show higher levels of perfectionism than CCON.**

7. When an individual in a family has OCD quality of family life is known to be significantly impaired, and the burden on children has been found to be similar to adult relatives of sufferers. Studies have identified a ‘general stress’ effect of living with a parent with OCD **therefore it is predicted that COCD will show general reduced competence in life activities, school performance and social skills.**

8. Having a parent with OCD has also been associated with emotional and behavioural disorders in offspring, particularly internalising disorders therefore **it is predicted COCD will show greater total psychological impairment compared to CCON, particularly in internalising problems.**

Hypotheses relating to the association between parenting and child functioning

9. As child-father interactions have been hypothesized to serve a socialization function to aide development of child competence, peer popularity and preparation for separation from caregivers, **it is predicted that a) father's involvement will show a positive relationship with child competence and a negative relationship with social problems b) Quality of relationship is also predicted to show a positive relationship with social skills.**

10. As certain parenting styles in fathers are associated with an increased or decreased likelihood of the development of anxiety in children it is predicted **a) use of punishment will show a positive relationship to child anxiety and b) use of modelling and reassurance will show a negative relationship to child anxiety.**

11. As an association between high EE and a range of childhood psychopathology as well as child anxiety disorders specifically has been shown, **it is predicted that a stronger association between these variables will be found in the OCD group than controls.**

12. As the quality of relationship between father and child has been shown to influence a child's ability to cope with anxiety as well as act as a protective factors in its development, **it is predicted quality of the father-child relationship will be associated with levels of child anxiety.**

2 Method

2.1 Ethical approval

This study was approved by the National Research Ethics Service (NRES Committee North London), REC reference 11/LO/0022 and the South London and Maudsley NHS ethics committee, reference R&D2011/034. It was agreed that parents would be informed their data would be held confidentiality, however they should be aware that if a potential risk was identified to the child, then the researcher would be obliged to take action to protect that child, preferably with parents consent and participation. Additionally it was agreed that should any significant problems be identified in the child that were not previously known to the parents, this would be discussed with the parents and assistance with seeking help given if appropriate. This was necessary for three children in the OCD group who displayed previously unacknowledged clinical level symptoms and one child in the control group.

One father in the OCD group did not consent to his child being given questionnaires as he had been hiding his OCD from them and did not wish them to know about it. This was respected and data was not collected.

2.2 Design and analytic plan

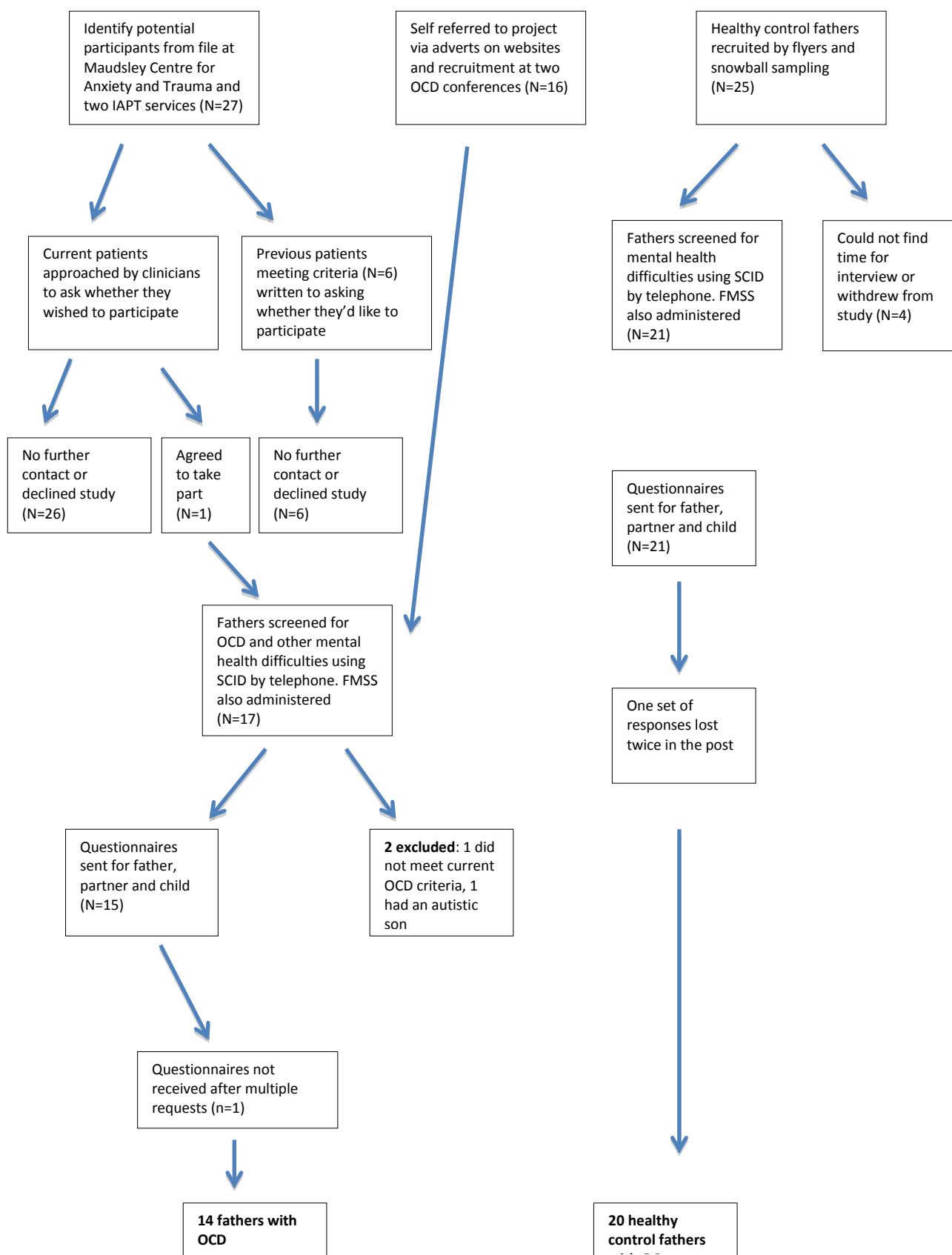
The study used a cross-sectional design, which allowed for the preliminary gathering of data to explore the effects of OCD in the father and children. An effort was made to recruit groups that were as similar as possible demographically. Planned mixed and repeated measures ANOVAs were used to compare group differences and t-tests were conducted where a simple comparison of means was sufficient. Non-parametric equivalent (Mann-Whitney U) tests were used when the data did not conform to conditions necessary for parametric testing. Categorical data was analyzed using Fisher's Exact test. Relationship between parenting and child variables were examined using parametric (Pearson) and non-parametric

(Spearman's) correlation coefficients, and relationships between categorical and continuous variables using the point-biserial correlation coefficient.

2.3 Recruitment

A clinical (OCD) and control group were recruited for this study. The control group was recruited through adverts in the local community. The clinical group was recruited through adverts on major OCD and anxiety charity websites and forums (OCD-UK, OCD-Action, Anxiety UK), through OCD conferences and adult therapy services. A flow diagram illustrating recruitment pathways and eventual numbers is shown in Figure 3.

Figure 3 Recruitment pathways



2.4 Participants

The clinical group consisted of 14 fathers currently meeting DSM-IV criteria for OCD who lived with their children and had at least one child in the 6-13 years age range. The Control group consisted of 20 fathers who lived with their children aged 6-13, who met no DSM-IV criteria for a current or past psychiatric diagnosis with the exception of specific phobia (present in 1 father). Exclusion criteria for any group were the presence of current psychotic illness or substance abuse, suicidal depression or current severe suicidal intent in the father and pervasive developmental disorder or history of abuse in the index child.

Table 1 Basic demographic data for the OCD and Control groups

Variable	OCD Group (N=14)	Control Group (N=20)	Tests of group difference
Father age	42	47.05	t=2.65, p=.01
Ethnicity	13=White British 1 = South African	17= White British 1= White other 1= British Asian 1=Chinese	
No. years full time education	12.81	16.85	t=3.20, p=.003
% currently married	71.43	90	p=.20*, n.s.
% taking psychotropic medication	78.57	0	p<.0001*
Mean times moved in last 5 years	1.14	0.3	t=2.01, n.s.
Mean number children	2.21	2.3	t=.81, n.s.
Child age	10.07	10.60	t=-.47, n.s.
Mean birth order of index child	1.27	1.7	p=.25 [^] n.s.
% male children	50%	45%	p=.52*, n.s.

* Fisher's exact, ^ Mann Whitney U Test exact significance value

Table 2 Paternal current diagnoses in OCD and control groups according to the SCID

Variable	OCD Group (N=14) Number (%)	Control Group (N=20)
OCD	14 (100%)	0 (0%)
Depression	4 (28.57%)	0 (0%)
Panic Disorder	8 (57.14%)	0 (0%)
Generalised Anxiety Disorder	8 (57.14%)	0 (0%)
Social Anxiety Disorder	2 (14.28%)	0 (0%)
Specific phobia	0 (0%)	1 (5%)
Post Traumatic Stress Disorder	2 (14.28%)	0 (0%)
Binge eating disorder	1 (6.66%)	0 (0%)

According to the rating system used in the clinical screening interview (Structured Clinical Interview for DSM-IV (SCID-IV (First, Spitzer et al. 1995), 3 (21.42%) of fathers had mild OCD, 4 (28.57%) moderate OCD and 7 (50%) severe OCD. Risk assessment revealed 12 fathers with OCD had previously experienced suicidal thoughts or made plans to commit suicide, the majority precipitated by an OCD related crisis. The mean age of onset of OCD symptoms in fathers was 13.42 years (S.D.=6.37, Range= 5-31) the majority beginning at or before puberty. Predominant OCD symptoms were *Intrusive thoughts* (9) concerning harm coming to others, particularly the family, *Ordering* (2) and *Contamination fears* (3).

2.5 Piloting

Two fathers and two children aged 9 piloted a range of measures to assess the time required to complete them, ease of understanding and potential parental assistance required with the children's questionnaires. As a result, modifications were made to the *Involvement In Parenting Questionnaire* to improve readability and consistency. It was also noted that children of 9 years needed help in completing the *Child Responsibility Attitudes Questionnaire*. Instructions for parents to help their children were then drawn up and included in the questionnaire packs, which was also a recommendation of the National Research Ethics Service review.

2.6 Procedure

After fathers had made contact with the study, an information sheet and consent form was sent to them via post or e-mail according to preference. After at least 24 hours a follow-up phone call/e-mail was made to discuss any concerns they may have had about the study and answer any questions. On receipt of consent, a time was booked to conduct the SCID screening interview by phone or in person. If the father met study criteria after completion of the SCID, the FMSS was then conducted. Questionnaires were sent to the fathers with an explanatory covering letters and instructions for helping children complete their questionnaires. A stamped addressed envelope was included for their return. On receipt of the questionnaires, fathers were sent a £15 postal order with a letter thanking them for participation and informing them they would be sent a summary of the results at the end of the study. In the case of any child protection or previously unknown child mental health issues, these were discussed with both supervisors and appropriate action taken under their guidance in accordance with the study's ethical approval and clinical codes of conduct.

2.7 Measures

A brief demographic questionnaire was used based on the Manchester Short Assessment of Quality of Life (MANSA) (Priebe, Huxley et al. 2001). This included items such as the age of father and mother, ethnicity, number of years of full time education and the number of times they had moved house in the last five years.

2.7.1 Psychiatric screening

Screening for the presence of psychiatric disorders was conducted using the Structured Clinical Interview for DSM-IV (SCID-IV) by First, Spitzer et al. (1995). This is a semi-structured interview designed to confirm or disconfirm the presence of DSM-IV diagnoses. Test-retest reliability is highly varied for this measure according to particular diagnoses, ranging from $r = .61$ for major depression to $r = .35$ for dysthymic

disorder (Zanarini, Skodol et al. 2000). In term of validity the results are highly varied by diagnosis and there is limited data available. Kranzler, Kadden et al. (1996) found that concurrent validity of anxiety disorders to be $\alpha=.40-22.33$ depending on comparison measures and major depression $\alpha= .37-13.10$ using an earlier version of the interview schedule.

2.7.2 Paternal expressed emotion- the Five Minute Speech Sample (FMSS)

The FMSS (Magana, Goldstein et al. 1986) is a method of assessing parents' attitudes toward their child based on a recorded 5- minute monologue about them. It has been shown to have concurrent validity with the Camberwell Family Interview, a lengthy semi structured interview measuring affective attitudes (Leeb, Hahlweg et al. 1991). The FMSS examines affective tone and the content of the parents' speech to gauge aspects of the parent-child interaction. Specifically evidence for two distinct dimensions a) *criticism* and b) *emotional over-involvement* are based on nine sub scores from which an overall 'Expressed Emotion' (EE) rating is derived.

The following scoring criteria were used as in the original Magana reference (Magana, Goldstein et al. 1986):

A High Criticism rating was given if the parent met criteria for one of more of the following:

- A negative initial statement
- A negative relationship rating
- One or more criticisms about their child

An overprotection rating was assigned when parents:

- Reported self-sacrificing or overprotective behaviour
- If there was emotional display such a crying during the monologue

- Or a combination of at least *two* of the following: excessive detail about the past, excessive praise, or statements of 'positive attitude' e.g. 'I would do anything in the world for Freddy'

Parents who did not meet any of the criteria above were rated as 'Low EE'. The use of the FMSS to measure EE has demonstrated good reliability and predictive validity e.g. in sample of children with internalizing disorder (Asarnow, Goldstein et al. 1993). In this study Fisher's Exact test was used to examine the association between high EE in mothers as a predictor of child recovery from internalising disorders and was found to be $p < .005$. Attention was paid to the age of the child and appropriate application of criteria discussed between a co-rater.

Inter-rater reliability was assessed by selecting a random six transcripts (17%) and recordings for rating. Randomization was achieved by sorting participants using the RAND function in Excel, and selecting the first six listed. The first author was not blind to diagnosis as they collected the data in person. It was not always possible for the second rater to be blind to diagnosis as OCD fathers often mentioned the effect of their OCD directly in the FMSS. Kappa coefficients for agreement were: *Opening statement*= 1.0, *presence of critical comments*=.83, *emotional over-involvement*=1.0, *categorization of high or low EE*=.83 and *Quality of relationship*=.67. Kappa values of .81-.99 illustrate 'almost perfect agreement' and .61-.80 'substantial agreement' (Viera and Garrett 2005).

2.7.2.1 Further thematic analysis of FMSS content

Thematic analysis was carried out using a staged method outlined by Braun, Virginia et al. (2006) and used in the only qualitative study examining the effects of OCD in parents on children (Griffiths, Norris et al. 2011). This allows main themes to be extracted from the data without taking a particular theoretical perspective.

2.7.3 Measures given to fathers

2.7.3.1 *Beck Depression inventory (BDI)*

The BDI (Beck, Ward et al. 1961) is a 21- item self- report questionnaire designed to measure cognitive, affective, motivational and physiological symptoms of depression over the period of the preceding week. Severity is rated 0-3 in terms of symptom intensity. Cut off scores in Beck and colleagues' work (Beck, Epstein et al. 1988) indicate a total score of <10 to indicate no or minimal depression, 10-18 to indicate mild to moderate depression, 19-26 moderate to severe depression and 30-63 severe depression. The BDI has been shown to have strong correlation with clinical ratings of depression, and good sensitivity and specificity. The BDI has been found to have good validity as a screening instrument when diagnoses of depression are used as the criterion, showing 99% specificity and 100 sensitivity (Lasa, Ayuso-Mateos et al. 2000) and have good reliability in terms of internal consistency ($r=.73-.92$) and split half reliability $\alpha=.93$ (Groth-Marnat 1990).

2.7.3.2 *Beck Anxiety Inventory (BAI)*

The BAI (Beck, Epstein et al. 1988) is a 21 item self- report scale focusing on the time period of the preceding week which enquires about the severity of a range of anxiety symptoms the sufferer may have experienced in that time. The scale was designed with the aim of differentiating symptoms of anxiety from those of depression. The BAI measures physical/physiological symptoms, cognitive aspects of anxiety and items with a physical and cognitive connotation (such as terror). Severity is rated from 0 (not at all) to 3 (severely) for each item. Scores are summated to give a total score between 0 and 63 with 0-9 indicative of normal sub-clinical anxiety, 10-18 mild anxiety, 19-29 moderate and 30-63 severe anxiety. The BAI has been found to be internally consistent ($\alpha=.94$) reliable ($r=.67$) and show superior convergent and discriminant validity to most self-report anxiety measures with correlation coefficients of .54, significantly higher than comparable anxiety measures (Fydrich 1992).

2.7.3.3 Obsessive Compulsive Inventory-Revised (OCI-R)

The OCI-R (Foa, Huppert et al. 2002) is a revised and shortened version of the original OCI (Foa, Kozak et al. 1998). It is a self-report measure comprising of 18 statements regarding OCD that can be endorsed in terms of level of distress ranging from 0 (not at all) to 4 (extremely). Statement can be divided into those that measure washing, checking, ordering, obsessing, hoarding and neutralizing. A total score is also produced. The revised version has been shown to have good internal consistency for most subscales with the exception of poorer performance for the neutralising subscale ($\alpha=.57-.93$), convergent validity and test-retest reliability (OCI-R total score $r=.70$) in clinical samples and normal controls (Huppert, Walther et al. 2007).

2.7.3.4 Responsibility Attitudes Scale (RAS)

The RAS (Salkovskis, Wroe et al. 2000) is a 26 item self-report questionnaire designed to assess general beliefs about responsibility. Participants are required to state the degree to which each item applies to them ranging from 'Totally agree' to 'Totally disagree' on a seven point likert scale in terms of what they are like 'most of the time'. The RAS has been shown to have good psychometric properties, including good discriminant validity in clinical groups (correlations with other clinical measures ranging from $r=.45-.52$)(Kabirnezhad, Mahmoud et al.2010). Test-retest reliability is good ($r=.94$) (Salkovskis, Wroe et al 2000).

2.7.3.5 Parenting Perception Scale (OCD group only)

The Parenting Perception Scale (Challacombe and Salkovskis 2009) (see Appendix 1) was designed to assess fathers' perception of how much their anxiety affected parenting. Participants were required to indicate how their anxiety problems affected specific areas in their relationship with their child on a scale of 0 (Not affected at all) to 100 (Very severely affected). The Parenting Perception Scale assesses the following domains: a) The ability to look after the child's physical needs,

b) the ability to look after their emotional needs, c) the ability to have fun and enjoy being with them and d) an overall global rating section of how much parenting is affected by anxiety problems. No data on the validity or reliability of this measure is available as this is a new measure.

2.7.3.6 Involvement in parenting questionnaire

A questionnaire was designed (see Appendix 2) to assess fathers involvement in parenting based on based on the literature review of father's involvement and developmental outcomes (Sarkadi, Kristiansson et al. 2008) and work by Lamb, Pleck et al. (1987) on defining father involvement. The questionnaire focused on three identified areas of significance in relation to fathers: a) *Accessibility* defined as presence and availability b) *Engagement* defined as direct contact e.g. care-taking and playing which both in turn lead to a sense of c) *Responsibility* which would include taking decisions on child and health care, discipline and so on. The questionnaire also aimed to characterize the *nature* of the fathers involvement/engagement as this has been shown to play a specific role not only in development of socialization but also for learning to cope with anxiety (Lamb and Lewis 2004).

Each category was firstly measured by a simple estimate of the number of hours in a typical week-day and weekend day being accessible, engaged or responsible in some respect. A second section aimed to characterize the nature of involvement/engagement by requiring endorsement of certain types of activities as well as giving space for the father to list other forms of involvement/engagement with the child. A section on addressing responsibility listed a number of statements which fathers were required to rate as having 'No responsibility' (0), 'Some responsibility' (1) or 'All responsibility' (2) for. These items were summated into a 'Responsibility Score'. Finally three items describing fathers feelings about their relationship with their child e.g. "I have regular, quality time with my children" were endorsed on a 5 point likert scale from 1 (Never/almost never' to 5 (Always, almost

always). As this measure was constructed for the study, no data on reliability or validity was available.

2.7.3.7 Parental Discipline Questionnaire

The Parental Discipline Questionnaire (Zabin and Melamed 1980) (see Appendix 3) is a questionnaire used to assess disciplinary style in parenting. It poses 14 situations that children may encounter whilst growing up and 5 ‘forced choice’ alternative about how the parent would help their child cope with these situations. A range of parenting techniques are covered in the response options: a) positive reinforcement, b) modeling, c) reassurance, d) force and e) reinforcement of dependency. Space is also provided for an ‘other’ response which was coded according to the five operationally defined categories. The first three styles are considered ‘positive’ as they assist coping with stressful experiences, and the latter two ‘negative’ as they demonstrate an association with child distress.

Modifications were made by Challacombe and Salkovskis (2009) as follows: (a) wording modified to be consistent with UK English (b) by the omission of two items which were not easily applicable to a UK sample (going to camp; giving a ‘show and tell’ in school) and (c) by the addition of four items considered to be relevant to OCD. These were *1. Child worried toy fell near dog poo* *2. Child worried they forgot to feed school pet* *3. Child worries parent may be injured in car crash* *4. Child ritualising due to anxiety*. No reliability or validity data is available for this modified version.

2.7.3.8 Child Behaviour Checklist (CBCL)

The CBCL (Achenbach and Rescorla 2001) is a widely utilized measure of psychopathology in children aged 6-18 years. It yields three specific (activities, social and school) competence scales, plus an overall competence scale. It is able to identify 8 internalizing and externalizing ‘syndromes’ which can be configured as six

DSM orientated scales (*affective problems, anxiety problems, somatic problems, attention deficit/hyperactivity problems, oppositional defiant problems and conduct problems*) Informants are required to rate a list of 112 items that describe certain behaviours as 0(not true), 1 (Somewhat or sometimes true) or 2 (Very true or often true). 'Clinical' and 'borderline' cutoffs are provided for each domain. The CBCL manual provides information on reliability: The test-retest reliability is 0.91 for Total Competence, 0.91 for Internalising, 0.92 for Externalizing and 0.94 for Total problem score. Cross informant agreement (between mothers and fathers) is 0.68 for Total Competence, 0.72 for Internalising, 0.85 for Externalizing and 0.80 for Total problem score, with mothers ratings being significantly higher than fathers ratings for all competence and problem scores with the exception of total competence. It has been found to have 'favourable' divergent and convergent validity ranging from $\alpha = .71-.89$ (Nakamura, Ebesutani, et al. 2009).

2.7.4 Alternative informant measures

Issues raised by Rapee (1997) concerned the large component of unique trait-specific rater bias in questionnaires examining aspects of child rearing and discrepancies between father and mothers in clinical samples with respect to their child's behaviour have been found (Rapee, Barrett et al. 1994). Therefore to increase validity of these measures and to examine potential differences in perspectives which may be of interest two measures, the CBCL and the Parenting Perception Scale (modified for alternative informant viewpoint) were given to both fathers and their partners (if available) or another close relative who knew the child.

2.7.5 Child report measures

2.7.5.1 Multidimensional Anxiety Scale for Children (MASC)

The MASC (March 1997) is a 39-item 4-point likert scale self report questionnaire which measures anxiety symptoms. Four factors have been identified: 1) Physical symptoms (12 items such as tense/autonomic), 2) Harm Avoidance (9 items such as anxious coping), 3) Social Anxiety (9 items such as humiliation) and 4) Separation

Anxiety (9 items). It also contains two embedded scales, 1) an embedded 10-items short form (MASC-10) which is a shorter efficient global measure of anxiety symptoms, and a 10-item Anxiety Disorder Index (ADI) which combines the 10 items which are most successful at discriminating anxious from non-anxious children. The MASC has a 95% success rate at correctly identifying anxious children. The MASC has good test-retest reliability, ranging from .719 to .833 for all scales and subscales, and adequate convergent ($r=.63$, $p<.01$) and divergent validity ($r=.13$, n.s.)(March, Parker et al. 1997).

2.7.5.2 Child Obsessive Compulsive Inventory (C-OCI)

The C-OCI (unpublished measure) is an adapted version of the adult Obsessive Compulsive Inventory (OCI) (Foa, Kozak et al. 1998). The C-OCI requires the child to give distress ratings on a likert scale (0- not at all to 4- extremely) relating to seven subscales (washing, checking, doubting, ordering, obsessing, hoarding and mental neutralizing) assessed over 41-items. The questionnaire has been validated in a non-clinical sample and those with OCD (Griffen 2000), although validity and reliability data has not been published for examination.

2.7.5.3 Child Responsibility Attitudes Scale (CRAS)

This questionnaire is based on the adults Responsibility Attitudes Questionnaire (Salkovskis, Wroe et al. 2000) and is a general belief measure linked to responsibility assumptions characteristics of OCD. The scale consists of 20 items that require a seven point likert scale response (1=totally disagree to 7=totally agree). Higher scores are indicative of a greater sense of responsibility. There are no current published norms for children. No reliability or validity data is available for this measure, however it was used as no other questionnaire measuring this concept was available.

3 Results

Results show first a comparison of psychopathology in the fathers in the OCD and control groups. These data are not related to specific hypotheses, merely show the differences between fathers with OCD and their non-clinical counterparts and can be seen as a further description of the clinical sample. Involvement in parenting data is also shown in this section, as it serves a descriptive function in addition to being used for analysis of associations between parenting and child functioning. Summary data and analysis is shown for: **a)** Hypotheses relating to parenting (perception of effect on parenting and parenting behaviours, 1-4) **b)** Hypotheses relating to child functioning (5-8) **c)** A further section shows the analysis for hypotheses 9-12 concerning associations between parenting and child functioning.

Raw scores are shown in tables and used for analysis except for data from the CBCL (Tables 12 and 13) and MASC (Table 14) that show T-scores, used for this data due to differences in child ages within each group.

3.1 Comparison of paternal psychopathology and involvement in the fathers with OCD and control groups

Tables 3-5 below show measures of current depression, anxiety and OCD symptomatology in the OCD and control groups. All scores shown are raw scores. T-values and 95% confidence intervals are shown in these tables, as the data were not subject to further statistical analysis. Table 6 concerns the amount of involvement fathers with OCD and controls have with their children.

Table 3 Current depression and anxiety for fathers with OCD and controls as measured by the BDI and BAI

Measure	OCD Group N=14 Mean (S.D.)	Control Group N=20 Mean (S.D.)	t –value	95% CI of difference
Beck Depression Inventory	19.35 (8.82)	4.85 (4.35)	5.68*	9.85-19.15
Beck Anxiety Inventory	19.28 (7.87)	3.00 (3.24)	7.31*	14.05-18.51

**Equal variances not assumed, significant at $p<.0001$.*

Table 3 shows that fathers in the OCD group showed significantly higher levels of depression ($p<.0001$) and anxiety ($p<.0001$) than control fathers. Mean depression scores for the OCD group fell just inside the *Mild* severity range, and mean anxiety scores fell in the *Moderate* severity range.

Table 4 OCD symptomatology- OCI-R scores by domain for fathers with OCD and controls

OCI domain	OCD Group N=14 Mean (S.D.)	Control Group N=20 Mean (S.D.)	t -value	95% CI of difference
Washing	3.28 (3.51)	0.05 (0.22)	3.44*	1.64-4.82
Checking	5.86 (3.54)	0.85 (1.18)	5.08*	3.28-6.74
Ordering	5.36 (3.54)	1.6 (2.03)	3.57*	1.81-5.71
Obsessions	9.57 (2.27)	0.7 (1.08)	13.54*	7.69-10.05
Hoarding	4.28 (3.33)	1.0 (1.02)	3.56*	1.67-4.89
Neutralising	3.71 (4.25)	0.3 (0.73)	2.97*	1.45-5.37
TOTAL	32.07 (13.06)	4.5 (4.21)	7.62*	21.23-33.91

Scores show mean distress levels (presented as means of cumulative likert ratings)

* Starred t-values indicate a significant difference at $p<.05$ Equal variances not assumed. Uncorrected for multiple comparisons.

Table 4 shows that fathers with OCD showed significantly higher scores in all aspects of OCD symptomatology.

Table 5 Responsibility Attitudes Scale scores in fathers with OCD and controls

Measure	OCD Group N=14 Mean (S.D.)	Control Group N=20 Mean (S.D.)	t -value	95% CI of difference
Responsibility Attitudes Scale	130.5 (22.76)	80.25 (23.69)	6.23*	40.14-60.36

* Significant at $p<.0001$

Table 5 shows that attitudes reflecting increased sense of responsibility were significantly elevated in the OCD group ($p<.0001$).

Table 6 Involvement in parenting shown for fathers with OCD and controls with group comparisons by domain

Domain	OCD Group N=14 Mean (S.D.)	Control Group N=20 Mean (S.D.)	t –value	95% CI of difference
Accessibility[^]				
Availability	9.85 (5.58)	8.00 (4.65)	1.05, n.s.	1.73-5.43
Engagement	3.52 (2.23)	2.46 (2.12)	1.41, n.s.	0.48-2.60
Responsibility	5.44 (4.44)	1.15 (1.61)	3.15*	2.10-6.48
Involvement^{\$}	3.70 (1.25)	3.82 (1.31)	-.24, n.s.	0.79-1.03
Responsibility+	12.28 (2.33)	8.25 (2.51)	4.74*	2.30-5.76

[^]= mean number of hours summed over typical week and weekend day ^{\$}=Frequency of activity /mean number of activities, + = mean endorsement of 10 items on scale 0-2)

* Significant at $p < .01$

Table 6 shows that there were no significant differences between the nature of involvement with children in OCD fathers and controls, with the exception of hours solely responsible for children where the OCD group spent significantly ($t(32) = 3.15$, $p = .007$) more time in this role and responsibility for children overall ($t(32) = 4.74$, $p < .001$), where fathers with OCD taking more responsible than control fathers.

The next section 3.2 moves from characterising the sample to presentation of the analysis for testing the hypotheses.

3.2 Perception of effect of OCD on parenting

3.2.1 Analysis for Hypothesis 1: It is predicted that fathers with OCD will view their own parenting as impacted by OCD and that overall impairment will be related to their OCD severity.

The Parenting Perception Scale was used to examine the perceived effect of having OCD on parenting. Items were rated on a 1-100 % scale in terms of impact or belief according to question type. Table 7 shows the ratings of impact according to fathers and mothers.

Table 7 Perception of the effect of OCD on parenting in fathers and mothers (rated by OCD group only)

Domain	Father rated N= 14 Mean % (S.D.) Range	Mother rated N=13 Mean % (S.D.) Range	Tests of group difference
Perception of current effect of OCD on parenting			F(1,24)= 4.22, p=.05
Ability to look after child's physical needs	25 (23.77) 0-70	15.00 (15.07) 0-40	
Ability to look after child's emotional needs	50 (31.13) 0-100	29.89 (28.6) 0-80	
Ability to have fun with them	56.43 (28.98) 0-100	34.76 (21.93) 0-80	
With parenting overall	55 (25.64) 10-100	39.47 (21.14) 0-80	
Perception of effect of OCD on child			F(1,24)=.17, p=.68
Child experience ill effects	35 (26.23) 0-80	30.21 (20.82) 10-70	
Child's social relationship be affected	36.43 (26.78) 0-80	32.38 (21.03) 10-80	
Emotional well-being affected	39.29 (27.02) 0-80	35.43 (20.59) 10-80	
Behaviour affected	41.43 (25.07) 0-80	34.63 (20.21) 10-8	
Child develop similar problems	54.28 (24.08) 10-90	37.32 (27.86) 10-100	
Perception of causes of effect on child			
Because anxiety may be learnt from others	59.28 (25.56) 20-100	39.45 (23.43) 20-90	p=.13
Because anxiety may be passed on through genes	63.57 (20.97) 30-100	45.14 (31.71) 0-100	p=.37
Because child would be generally stressed by fathers difficulties	49.29 (31.49) 0-100	38.34 (30.15) 0-90	p=.08
How has having a child affected:			
The frequency of anxiety symptoms	54.28 (31.79) 0-100	42.47 (29.75) 0-90	
Distress caused by anxiety symptoms	55.71 (34.13) 0-100	37.46 (29.60) 0-90	
Ability to cope with anxiety problems	47.85 (37.24) 0-100	39.68 (26.25) 0-90	
Overall affect of having a child	57.14 (27.01) 0-100	41.43 (27.23) 0-90	

Fathers' report of impact of OCD on parenting shown in Table 7 indicates they rate it as having a large impact across most categories. Correlational analysis was conducted to examine the hypothesis that perception of impact on parenting would be related to OCD severity as measured by the OCI-R. This was found to be non-significant ($r=-.36$, $p=.19$). As this was a surprising finding, mother's perception was correlated with their partner's OCD severity and interestingly was significantly

negatively correlated with their partner's OCD severity ($r=-.62$, $p=.03$); that is they perceived parenting as more affected when OCD was less severe. As data in Table 7 shows, mothers tended to rate consistently lower across all categories indicating that they perceived the impact of OCD to be smaller than fathers overall. Post hoc analysis using mixed ANOVAs was conducted to examine potential differences in impact between the affected father and partner. Impact was divided into three main domains: 1) Effect on parenting, Effect on child and 3) Perception of causes of effect on child. Analysis is presented below:

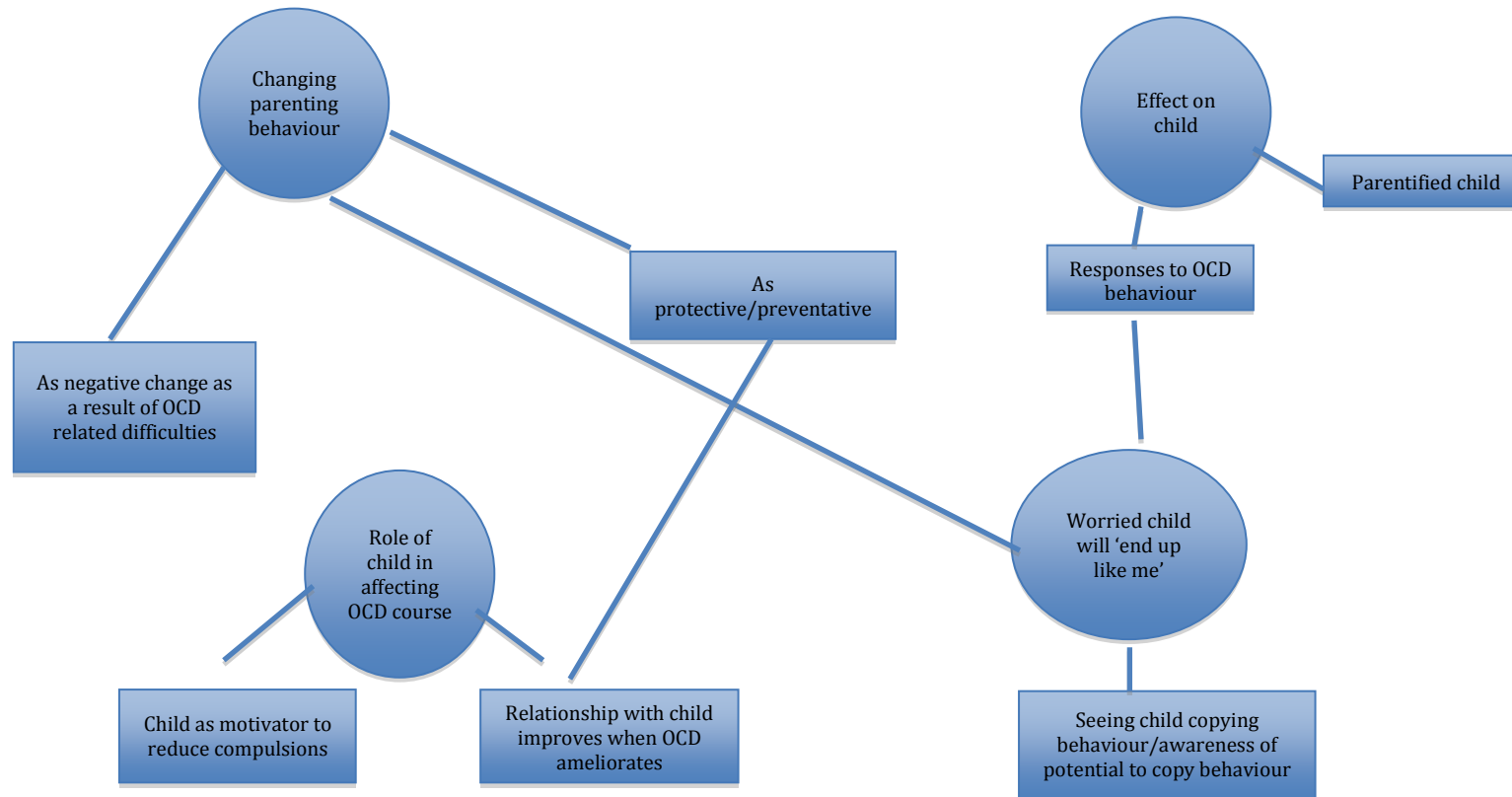
- 1) *Effect on parenting*: The ability to meet the physical, emotional needs and the effect on being able to have fun with children was entered into a $2(\text{parent}) \times 3(\text{domain})$ mixed ANOVA. A significant between groups main effect was found ($F(1,24)=4.22$, $p=.05$) indicating the higher rating (perception of greater impairment) of fathers across the three scales. However there was no significant interaction between parent and domain ($F(2,48)=.67$, $p=.48$) (Greenhouse-Geisser corrected).
- 2) *Effect on child*: Perception of the effect on the child's emotional wellbeing, social relationships and behaviour was analysed between parents in a $2(\text{parent}) \times 3(\text{domain})$ mixed ANOVA. There was no main effect between parents in their rating in this domain ($F(1,24)=.17$, $p=.68$), and no main effect of domain ($F(2,48)=1.51$, $p=.23$) (Greenhouse-Geisser corrected) or interaction between parent and domain ($F(2,48)=.24$, $p=.67$) indicating parents perceived the effects on the child in a similar manner.
- 3) *Perception of causes of effect on child*: Strength of belief of perceived causes of effects on children were examined differently, as the domains did not relate to each other conceptually. As mother's data was not normally distributed for two of the three domains (Kolmogorov-Smirnov test of normality $>.05$). Mann-Whitney U tests that give an exact probability of a group difference were used to compare each domain as a conservative precaution. There were no significant differences between parents in the view that difficulties are genetically inherited ($p=.13$) or a result of general

stress ($p=.37$). There was a non-significant trend towards fathers perceiving behaviour is learnt from others more than mothers ($p=.08$).

In addition to the Parenting Perception Scale a thematic analysis was conducted of the speech sample data (see section 2.7.2.1 in Methods).

Figure 4 shows the final thematic map for themes relating to OCD in the FMSS. OCD was spontaneously mentioned in 13 speech samples in the OCD group. Primary thematic maps are shown in Appendix 4.

Figure 4 Final thematic analysis of OCD-related material in the FMSS



Summary

Hypothesis 1, which stated that fathers would view their parenting as impacted by OCD was supported, and post hoc analysis indicates that they see the effect of their OCD on their parenting as greater than how it is perceived by their partner. However the hypothesized association between perceived impact and OCD severity was not supported. The exploratory thematic analysis revealed concerns about the effect of OCD fell into two main areas: the effect it has on parenting, and the direct effect on the child.

3.3 Parenting behaviours and style

The following section presents analysis for hypotheses 2 and 3 regarding parenting behaviours followed by hypothesis 4 concerning parenting style.

3.3.1 Analysis for Hypothesis 2: It is predicted that in general parenting scenarios fathers with OCD will show greater endorsement of 'reinforcement of dependency' and 'punishment' parenting behaviours **and Hypothesis 3:** It is predicted in OCD specific scenarios fathers with OCD will show more 'force' and 'punishment' than controls.

Parenting behaviours were measured using the Parental Discipline Questionnaire (Zabin and Melamed 1980) in a modified format that included additional OCD specific items. Table 8 shows the mean endorsement of each parenting behaviour for general and OCD specific items.

Table 8 Zabin & Melamed Parental Discipline Questionnaire means for General and OCD related items in the OCD and control groups

Domain	OCD Group N=14 Mean (S.D.)*	Control Group N=20 Mean (S.D.)*
GENERAL ITEMS		
Positive reinforcement	2.89 (0.85)	2.24 (0.68)
Punishment	1.79 (0.62)	1.57 (0.37)
Force	1.62 (0.58)	1.46 (0.46)
Reinforce dependency	2.46 (0.54)	2.7 (0.50)
Modelling & Reassurance	3.78 (0.61)	3.97 (0.65)
OCD ITEMS		
Positive reinforcement	2.01 (0.91)	1.59 (0.74)
Punishment	1.55 (0.64)	1.27 (0.44)
Force	1.52 (0.56)	1.59 (0.54)
Reinforce dependency	2.66 (0.55)	2.72 (0.63)
Modelling & Reassurance	3.71 (0.81)	3.8 (0.90)

*Values shown are mean total of items endorsed on a likert scale for all items

Note: simple tests of group difference were not conducted for data in Table 8 therefore not shown in the table

Analysis was conducted to examine parenting behaviours in the OCD and control groups in general and OCD specific parenting scenarios. A 2(group) x2 (scenario type) x 5 (parenting behaviours) mixed ANOVA was conducted. There was no overall between groups main effect ($F(1,32)=.66$, $p=.42$). Whilst overall within subject effects showed parenting behaviour overall differed between general and OCD specific scenarios, ($F(1,32)= 21.25$, $p<.001$), there was no interaction between scenarios and diagnosis ($F(1,32)=.05$, $p=.82$) suggesting broadly similar changes occurred across both groups (see Figure 5 and Figure 6). There was also a significant main effect of parenting behaviour ($F(4,128)=117.26$, $p<.001$) but no interaction with diagnosis ($F(4,128)= 2.07$ $p= .11$). Simple contrasts showed all parenting behaviours to significantly differ from one another $p<.01$ with modelling being the most commonly used parenting technique in both groups across both scenarios.

Figure 5 Parenting behaviours for general items for OCD and control groups

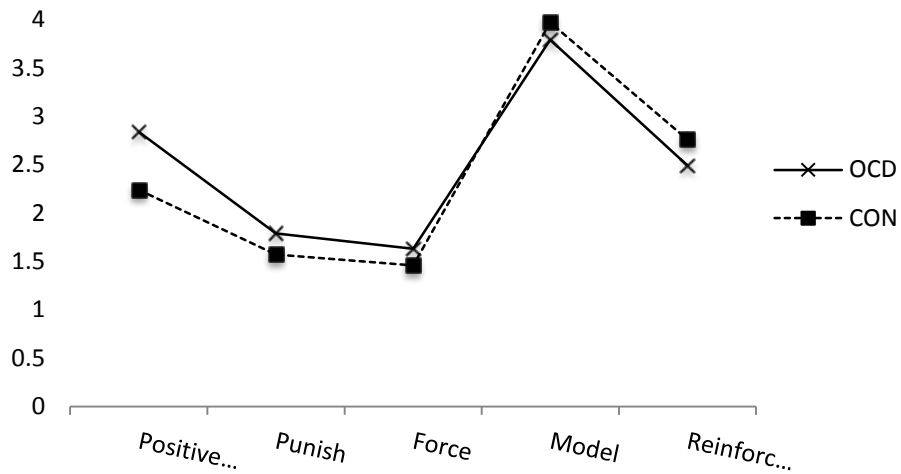
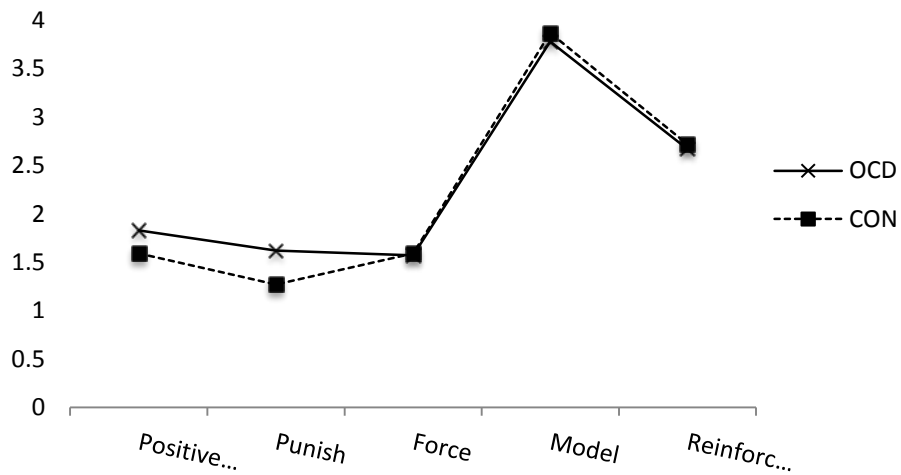


Figure 6 Parenting behaviours for OCD specific items for OCD and control groups



Summary

The hypothesis that OCD fathers would show greater endorsement of 'reinforcement of dependency' and 'punishment' in general behaviours was not

supported, nor was the hypothesis that OCD fathers would show more ‘force’ and ‘punishment’ in OCD specific scenarios.

3.3.2 Analysis for Hypothesis 4: It is predicted a higher rate of EE will be found in the OCD fathers.

Parenting style was measured by employing a measure of expressed emotion the Five Minute Speech Sample technique (Magana, Goldstein et al. 1986). This gives categorical ratings for Expressed Emotion, Quality of the Opening Statement and Quality of Relationship. Table 9 shows the category ratings for the OCD and Control groups.

Table 9 Expressed emotion categorization in OCD and control groups using the Five Minute Speech Sample

	OCD Group N=14 % (n)	Control Group N=20 % (n)	Tests of group difference (Fisher's Exact test)
EXPRESSED EMOTION			
High Expressed Emotion	53.33 (8)	20 (4)	p=.04
..Of which solely high critical	20 (3)	15 (2)	
..Of which solely high EOI	13.33 (2)	10 (2)	
..Of which high critical and EOI	20 (3)	0 (0)	
OPENING STATEMENT			
Positive	35.71 (5)	55 (11)	
Neutral	64.28 (9)	45 (9)	
Negative	0 (0)	0 (0)	
QUALITY OF RELATIONSHIP			p=.08 [^]
Positive	35.71 (5)	70 (14)	
Neutral	42.85 (6)	20 (4)	
Negative	7.14 (1)	0 (0)	
Relationship not mentioned*	14.28 (2)	10 (2)	

** This category added for fathers who did not mention any material that could be assigned a relationship rating ^ Fisher's Exact performed on relationship groupings divided into 'positive' and 'all other groups'*

The hypothesis that a higher rate of EE will be found in OCD fathers was explored using Fisher's exact test to compare differences between groups on overall levels of EE and was found to be p=.04 confirming a significant difference. Cell counts were too small to accurately compare proportion of high criticism and proportion of high EOI. Only 35.71% of fathers with OCD had a positively rated relationship with their

child compared to 70% of controls. When relationship groups were divided into positive v all other groups (neutral, negative and not mentioned) Fisher's Exact test showed a trend towards a group difference but was not significant ($p=.08$).

Summary

The hypothesis that OCD fathers would show higher levels of overall EE was supported. Insufficient cell counts prohibited a further analysis of EE type.

3.4 Measures of Child Functioning and Adjustment

Child self-report measures were obtained for 13 children of the 14 OCD families (COCD) and 20 control offspring (CCON). Measures are presented in hypothesis order as much as is possible, although some hypotheses draw on more than one measure.

3.4.1 Analysis for Hypothesis 5: It is predicted that COCD will show elevated OCD symptomatology and OCD related cognitions than CCON.

Direct self-report measures used to address this hypothesis; the C-OCI and the CRAS are shown in Tables 10 and 11 below. Analysis also draws on data presented in Table 14 (MASC self-report) and tables 12 and 13 (CBCL parent report).

Table 10 C-OCI scores (by domain and total) for COCD and CCON

Child-OCI domain	COCD N=13 Mean (S.D.)	CCON N=20 Mean (S.D.)	Tests of group difference
TOTAL	35.92 (32.16)	23.55 (18.21)	$t(31) = 1.26, p = .22$
Washing	5.75 (5.05)	3.00 (3.19)	
Checking	6.85 (6.61)	3.95 (4.22)	
Doubting	2.62 (3.35)	1.65 (1.49)	
Ordering	5.61 (6.15)	2.8 (2.91)	
Obsessions	7.54 (7.14)	6.75 (5.40)	
Hoarding	3.15 (3.23)	2.65 (2.08)	
Neutralising	4.38 (5.31)	2.75 (2.73)	

Scores show mean distress levels (presented as means of cumulative likert ratings)

Table 11 CRAS scores for COCD and CCON

Measure	COCD N=13 Mean (S.D.)	CCON N=20 Mean (S.D.)	Tests of group difference
Child Responsibility Attitudes Scale	81.61 (17.39)	81.70 (18.90)	t (31).61, p=.54

Four measures were utilized to look for elevated OCD symptoms in COCD. COCD were not found to have elevated symptoms according to the self-rated C-OCI (using the Total Score see Table 10) ($t(31)=1.26, p=.22$) the CRAS ($t(31).61, p=.54$) or the Harm Avoidance Scale of the MASC ($t(31).14, p=.88$). The parent rated CBCL OCD scale was analyzed using Mann Whitney U test which gives an exact probability of the group difference, and the COCD group did not differ significantly from CCON ($p=.26$).

Summary

No differences were found in any measures of OCD symptomatology. Therefore the hypothesis that COCD would show greater OCD symptomatology and OCD related cognitions than CCON was not supported.

3.4.2 Analysis for Hypothesis 6: It is predicted COCD will show higher levels of perfectionism than CCON.

The MASC Perfectionism scale (child self-report) was used to examine whether COCD showed the hypothesized elevated levels of perfectionism. COCD and CCON scores did not significantly differ ($t(31)= -.237, p=.81$).

Summary

The hypothesis that elevated levels of perfectionism would be found in COCD was not supported.

3.4.3 Analysis for Hypothesis 7: Is predicted that COCD will show general reduced competence in life activities, school performance and social skills.

Data from the Child Behaviour Checklist (CBCL) was used to test this hypothesis. As this measure was given to both parents, Table 12 and Table 13 show the raw data for fathers and mothers, presented as T-scores due to large variation in child age.

Note higher scores indicate greater dysfunction with the exception of Total competencies subscales where the reverse is true.

Table 12 Father rated CBCL scores for COCD and CCON by domain

Domain	COCD N=14 Mean (S.D.)	CCON N=20 Mean (S.D.)	Tests of group difference
Total competencies	43 (10.31)	50.75 (7.23)	
Activities	43.43 (8.26)	42.55 (8.45)	F(1,30)=.13, p=.71
Social	46.71 (10.35)	53.65 (7.84)	F(1,30)= 4.13, p=.05
School	47.07 (7.67)	52.10 (3.86)	F(1,30)= 5.80, p=.02
Social problems	56.35 (7.07)	52.65 (4.95)	p=.02 [^]
Thought problems	56 (7.67)	51.55 (3.51)	
Attention problems	55.21 (5.84)	50.70 (1.26)	
Internalising total	54.5 (12.02)	42.85 (10.87)	t (32) =2.94, p=.006
Externalising total	50 (11.70)	43.20 (9.01)	t (32)= 1.91, p=.06
Total problems	52.14 (12.50)	41.05 (9.67)	t (32)=2.91, p=.006
DSM-Scales			
Affective problems	53.35 (6.85)	51.70 (5.16)	t (32)=.765, p=.45
Anxiety problems	58 (9.06)	51.75 (2.89)	t (32)=2.49, p=.02
Somatic problems	53.92 (5.38)	52.60 (5.15)	
ADHD problems	52.64 (3.56)	50.35 (0.67)	
ODD	54.64 (5.75)	51.85 (3.86)	
Conduct	55.64 (8.34)	52.45 (4.51)	
Sluggish cog tempo	56.71 (6.66)	52.15 (5.19)	
OCD	59 (11.08)	53.95 (5.96)	p=.26 [^]
PTSD	58.35 (10.67)	52.10 (4.68)	

[^] tested using Mann Whitney U test which outputs an exact probability value

Table 13 Mother rated CBCL scores for COCD and CCON by domain

Domain	COCD N=13 Mean (S.D.)	CCON N=19 Mean (S.D.)
Total competencies	40.41 (10.81)	50.75 (7.23)
Activities	42.07 (11.70)	48.78 (9.92)
Social	44.53 (10.09)	55.05 (8.26)
School	46.08 (9.44)	53.89 (4.66)
Social problems	56.46 (8.90)	51.26 (3.39)
Thought problems	57.07 (10.40)	52.52 (4.43)
Attention problems	59.61 (14.85)	51.21 (4.13)
Internalising total	57.15 (17.05)	41.47 (10.51)
Externalising total	49.46 (14.85)	41.73 (9.14)
Total problems	53.07 (17.00)	40.26 (10.04)
DSM-Scales		
Affective problems	59.69 (12.82)	51.26 (3.05)
Anxiety problems	59.61 (9.14)	52.52 (5.41)
Somatic problems	56.92 (10.97)	51.68 (5.30)
ADHD problems	55.30 (8.54)	51.10 (3.68)
ODD	54.92 (7.92)	52.10 (4.77)
Conduct	56.15 (8.14)	50.78 (1.78)
Sluggish cog tempo	58.69 (10.20)	52.84 (5.45)
OCD	59.53 (2.92)	52.42 (5.46)
PTSD	60.07 (13.51)	52.52 (5.82)

Note: tests of group difference were not conducted for data in Table 13 as mothers' scores did not show a significant difference from fathers', therefore further analysis was not conducted.

Competence analysis

Father and mother reported CBCL scores were entered into a 2 (parent) x 3 (competence domain) x 2 (group) mixed ANOVA to ascertain whether there was a significant difference between parent ratings on the CBCL measure between parents. Between subject effects showed an overall difference between COCD and CCON ratings ($F(1,27)=12.53$, $p=.001$). Within subject effect analysis revealed a significant main effect of competence domain ($F(2,54)=4.21$, $p=.02$) but no main effect of parent ($F(2,54)=66$, $p=.42$). However the significant interaction between parent and competence domain ($F(2,54)=7.61$, $p=.001$) revealed that mothers and fathers did not rate all the scales similarly. Figure 7 and Figure 8 show the differences between mothers and fathers lie in their ratings of activity competence, which fathers in the OCD and CON groups show no difference in rating ($F(1,30)=.13$, $p=.71$) but mothers

show a trend towards rating greater impairment in the COCD group ($F(1,28)=.229$, $p=.06$). COCD show a consistent pattern rated by both parents as showing reduced social and school competence compared to CCON.

Figure 7 CBCL competence scores rated by fathers

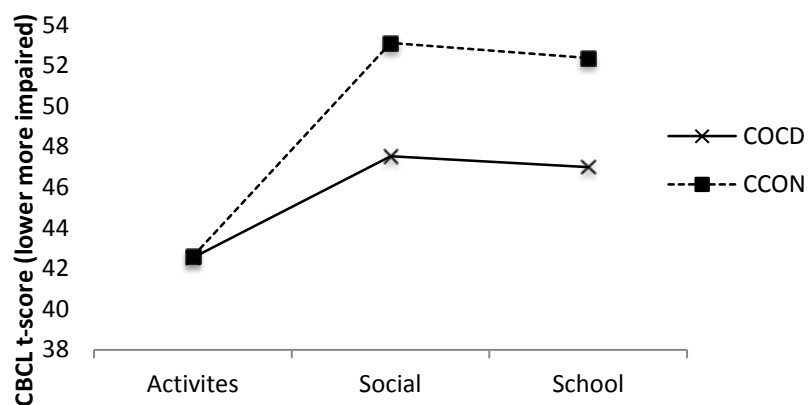
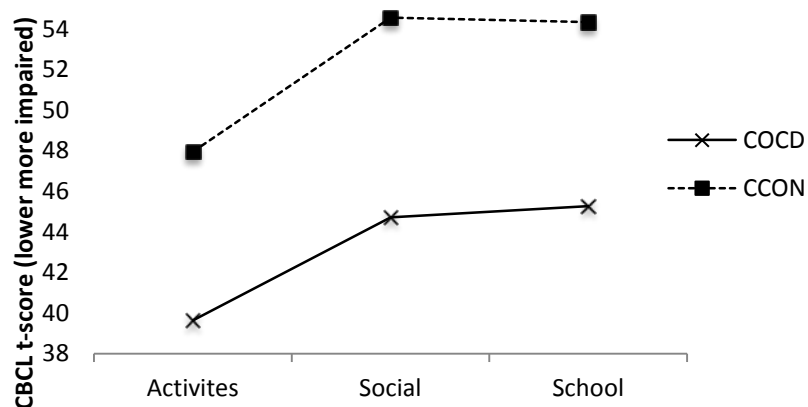


Figure 8 CBCL competence scores rated by mothers



Examination of fathers' social and school ratings between groups showed them to be significantly different (Social $F(1, 30)= 4.13$, $p=.05$) School $F(1,30)= 5.80$, $p=.02$). The

Social problems index of the CBCL was also compared between groups to examine broader social functioning using Mann Whitney U test where COCD showed significantly more social problems than CCON ($p=.02$).

As CCON's fathers had significantly more years of education than the COCD group (see Table 1) correlations were run to assess whether the identified school and social differences were associated with level of education in the home. Whilst School competence across the two groups as a whole was positively correlated with father's education ($r=.42$, $p=.03$) it was not related to social competence ($r=.24$, $p=.21$).

Summary

The hypothesis 7 that predicted COCD would show reduced competence in life activities was partially supported as they showed reduced school and social competence, with social competence being unrelated to level of education of the parents.

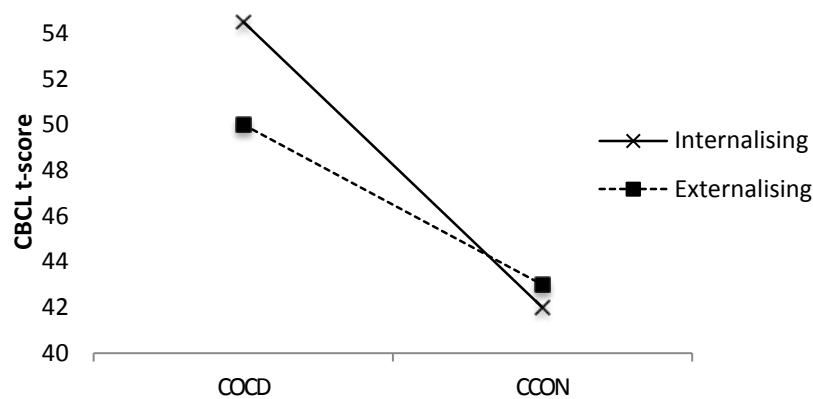
3.4.4 Analysis for Hypothesis 8: It is predicted COCD will show greater total psychological impairment compared to CCON, particularly in internalising problems.

Several child self-report scales were used to test this hypothesis and parent report from the CBCL. Both fathers' and mothers' CBCL data was entered into the analysis to examine whether they showed a significant difference in rating. This section will present analysis addressing a) General psychological wellbeing measured by the internalising and externalising scales of the CBCL b) Examination of psychological impairment, specifically anxiety and affective problems using child self-report data for anxiety (measured using the MASC) and the CBCL DSM Anxiety and Affective disorder subscales of the CBCL.

a) Psychological wellbeing: externalising and internalising problems

The externalising and internalising scales of the CBCL were used as a measure of general psychological well-being and functioning. These scales were entered into a 2 (scale) x 2 (parent) x 2 (group) mixed ANOVA. There was no main effect of which parent rated the scale ($F(1,30)=.002, p=.92$) or any interaction between parent rating and group ($F(1,30)=.924, p=.34$). However there was a main effect of scale ($F(1,30)=6.77, p=.01$) and a significant interaction between scale and group ($F(1,30)=10.30, p=.003$). A main effect of group was also evident ($F(1,30)=7.42, p=.01$). An examination of this interaction effect was undertaken with the fathers' data only. Figure 9 shows COCD scored significantly higher than CCON on internalising problems ($t(32)=2.94, p=.006$) and a non-significant trend towards showing greater externalising problems ($t(32)=1.91, p=.06$).

Figure 9 Internalising and externalising problems in children of COCD and CCON measured by CBCL summary scales.



b) Psychological wellbeing: anxiety and affective problems

Anxiety and affective problems were analyzed using child self-report data for anxiety from the MASC and the CBCL DSM Anxiety and Affective disorder subscales

of the CBCL. As there were no significant differences between parent ratings for internalising and externalising problems, only the fathers' data was used for analysis in this section. Table below shows the MASC scores for the COCD and CCON groups for each main domain of the MASC, and provides two summary scores, the Anxiety Disorders Index and the MASC Total.

Table 14 MASC scores for COCD and CCON showing MASC Total Anxiety Disorders Index and contributing domain scores

MASC	COCD N=13 Mean (S.D.)	CCON N=20 Mean (S.D.)	Tests of group difference
MASC Total	49.92 (10.41)	45.70 (10.80)	
Anxiety Disorders Index	57.38 (9.27)	52.85 (9.43)	F(1,31)=5.11, p=.03*
Physical symptoms index	46.07 (8.17)	46.80 (8.73)	
Harm avoidance subscale	42.69 (7.85)	41 (8.49)	
Social anxiety subscale	58.07 (8.69)	52.35 (9.65)	
Separation/panic subscale	60.46 (11.04)	50.55 (11.15)	

* F value shown for repeated measure ANOVA using ADI and Separation/panic subscale

Examination by father report:

The CBCL DSM Anxiety and Affective disorder subscales were entered into a 2(group) x 2 (subscale) repeated measures ANOVA. This revealed a significant main effect of subscale ($F(1,32)= 4.95, p=.03$) and an interaction between subscale and group ($F(1,32)=4.74, p=.04$). Between subjects effects also showed a significant effect of group ($F(1,32)= 4.68, p=.03$). All these analysis were Greenhouse Geisser corrected. Exploration of the interaction using t-tests revealed that the whilst COCD scored significantly higher in measures of anxiety ($t(32)=2.49, p=.02$) there was no significant difference in their affective subscale score ($t(32)=.765, p=.45$).

Examination by child self-report

The Anxiety Disorders Index (ADI) of the MASC and the Separation/panic scale (not included in the ADI) were entered into a 2(group) x 2 (scale) repeated measures ANOVA. COCD children scored significantly higher than CCON in both anxiety measures ($F(1,31)=5.11$, $p=.03$), with no interaction between scale and diagnosis ($F(1,31)= 2.01$, $p=.16$).

Summary

Hypothesis 8 was largely supported as COCD showed greater internalising overall and anxiety problems than CCON, although they did not show elevated affective problems according to father report.

3.5 The association between parenting and child functioning

Data from the measures to assess associations between parenting and child functioning have been presented in sections 3.2 to 3.4. This section is concerned with hypotheses 9-12. Analysis to test each hypothesis is presented.

3.5.1 Analysis for Hypothesis 9: It is predicted that a) father's involvement will show a positive relationship with child competence and a negative relationship with social problems b) Quality of relationship is also predicted to show a positive relationship with social skills.

To examine the hypothesized positive relationship between paternal involvement and child competence and negative relationship with social problems correlations were run between estimates of mean hours of *Engagement* and estimates of mean hours of sole *Responsibility* and Total Competence (CBCL) and Social Competence (CBCL). No correlations were significant for the OCD group (all $p>.05$). In the control group both *Engagement* and *Responsibility* showed a trend towards significance with Overall Competency ($r=.32$, $p=.08$ and $r=.32$, $p=.08$ respectively).

Summary

Neither parts of hypothesis 9 were supported, as correlations between both sets of measures were non-significant.

3.5.2 Analysis for Hypothesis 10: It is predicted a) use of punishment will show a positive relationship to child anxiety and b) use of modelling and reassurance will show a negative relationship to child anxiety.

Pearson correlations were used to examine the relationship between overall use of punishment and overall use of modelling and reassurance in the Parental Discipline Questionnaire and child anxiety as measured by the MASC total score (hypothesis 10). A positive relationship between child anxiety and punishment was predicted, and a negative relationship between child anxiety and modelling and reassurance. Non-significant relationships between punishment and child anxiety were found in the OCD ($r=-.16$, $p=.59$) and control groups ($r=.28$, $p=.24$) and non-significant relationship between child anxiety and modelling and reassurance OCD ($r=.19$, $p=.52$) and control groups ($r=.18$, $p=.45$).

Summary

Both parts of hypothesis 10 were unsupported, with no significant relationships between specific parenting behaviours and child anxiety.

3.5.3 Analysis for Hypothesis 11: It is predicted that a stronger association between these variables will be found in the OCD group than controls.

Point-biserial correlations were used to examine the relationship between paternal high EE as rated by the FMSS in each group and general psychological difficulties in children. High EE was entered for correlational analysis with child reported anxiety (MASC total) and reports of anxiety and total problems by fathers (CBCL Anxiety and CBCL Total Problems). Groups were split so correlations could be examined separately. No significant correlations were found between High EE and any measure in either group (all $p>.05$).

Summary

The hypothesis that relationships between paternal high EE and psychological difficulties in children in the OCD group would be significantly stronger than controls was unsupported with no significant correlations in either group across the range of measures.

3.5.4 Analysis for Hypothesis 12: It is predicted quality of the father-child relationship will be associated with levels of child anxiety.

Point-biserial correlations were conducted between relationship status as measured by the Five-Minute Speech Sample (relationship status was collapsed into positive and negative (including negative, neutral and not mentioned)), the MASC total Score and CBCL DSM anxiety scale. There were no significant relationships between relationship quality and measures of self reported anxiety in the OCD group $r=.04$, $p=.44$, or controls $r=.34$, $p=.07$, although the control data showed a trend towards significance. Equally there were no significant relationships between relationship quality and father reported anxiety in either group (OCD $r=.132$, $p=.32$, Controls $r=-.08$, $p=.35$). Therefore the hypothesis relationship status would show an association with child anxiety was not supported.

As secondary post hoc analysis, given the suggested role of the father-child relationship in building social competency, a correlational analysis was conducted to examine the nature of this relationship with the social competency and social problems scales of the CBCL. Interestingly there was a trend suggestive of a relationship between social competency and relationship quality in control fathers ($r=.36$, $p=.059$) but not in OCD fathers ($r=.15$, $p=.31$). It is also interesting that social competency was highly correlated with child reported anxiety in both the OCD ($r=.67$, $p=.005$) and control groups ($r=.52$, $p=.009$).

Summary

All the hypotheses predicting associations between aspects of parenting, involvement and relationship status and child functioning were unsupported.

4 Discussion

Data from this study have shown several interesting findings. With reference to the first set of hypotheses concerning perception of and actual parenting, fathers perceive their parenting to be affected by having OCD and to a greater degree than their partners, although perception of interference did not show a relationship to self-reported OCD severity. OCD severity in the father showed a significant negative correlation to perceived impact on parenting as rated by mothers. Fathers' perception of how OCD has affected their child and their views on its causes is similar to their partners' perception. However the thematic analysis revealed the affect on their child is a significant concern, as is passing on OCD to their children. In terms of actual parenting behaviours for general and OCD specific scenarios, whilst both control and OCD groups showed differences in parenting for each set of questions (using less positive reinforcement and less punishment for OCD items) there were no group differences in either domain. Therefore it would appear specific parenting behaviours are not significantly affected in fathers with OCD, even those that involve OCD scenarios. The only significant difference between the OCD and control fathers was in the level of EE, which suggests OCD father's parenting style is more critical or emotionally over-involved than control fathers. There was a trend for the quality of their relationships with their offspring to be poorer, although this did not reach statistical significance.

With reference to the second set of hypotheses, when OCD symptomatology in offspring was examined from multiple measures and informants, COCD had no more symptoms or associated features/traits than CCON, thus not supporting a specific transmission of OCD itself at this stage in development. However COCD showed reduced competence in everyday life, specifically poorer social competence and increased social problems. Significantly higher rates of internalising problems were also found, effects that were predominantly anxiety specific (by parental report). Affective symptoms were not included in child self-report measures however their

own ratings of anxiety were significantly higher than controls, both overall and specifically for separation and panic.

The third set of hypotheses concerned the relations between parent and child factors. In terms of relating child difficulties to paternal behaviour and involvement, the pattern was complex and differed by group. The OCD group fathers showed significantly higher levels of expressed emotion than controls, and there was a trend for the quality of their relationships with their offspring to be poorer. However, this did not correlate with any measures of child anxiety. In the control group expressed emotional equally showed no relationship to child rated anxiety. Quality of relationship however showed a trend towards being related to self- reported child anxiety and there was also a trend suggestive of a relationship between social competency and relationship quality in control fathers.

When examining the nature of father's contact with children from the perspective of actual responsibility and engagement, there were no significant relationships again in the OCD group between the nature of the father's role and general competency. However there was a trend towards overall competency in children being associated with paternal engagement and responsibility in the control group.

Therefore in summary, despite the perception of parenting being significantly affected no specific effects in terms of parenting behaviours were found, even in relation to OCD specific scenarios. There was however a difference in EE which is thought to reflect the emotional quality of interactions between the parent and child, and can be seen as akin to a parenting style. There was also a trend towards poorer relationship quality between father and child in the OCD group. COCD showed reduced social competency and increased social problems, internalising problems and anxiety difficulties compared to CCON however these were not related to parenting factors in any clear way.

Each set of hypotheses will be examined in turn in more detail below.

4.1 Perception of and actual parenting behaviours

Despite the high level of concern in fathers that OCD changed the way they parented in a negative manner, there were no group differences in this study in actual parenting behaviours as measured by the Zabin and Melamed questionnaire (Zabin and Melamed 1980). The lack of difference in parenting behaviours is somewhat surprising given the findings of Challacombe and Salkovskis (2009) who found mothers with OCD used more punitive parenting in OCD rated scenarios and were less likely than the control and panic group to let their child avoid fears. There may be several explanations for the lack of difference in this study: 1) It may reflect a true difference between mothers and fathers with OCD, with fathers' parenting behaviour less susceptible to change. 2) There may be an element of social desirability in fathers' responses which masked a real difference 3) it is possible that the mismatch between 'OCD' scenarios and OCD main symptom type in the fathers group means any changes in parenting due to OCD scenarios they experience in real life would have been missed. In the mothers' study 41% identified intrusive thoughts as their main symptoms (Challacombe and Salkovskis, 2009) whereas 64% of fathers in this study identified this as their main area of difficulty. As many fathers anecdotally shared with the researcher how OCD impacts their parenting behaviour on a day- to- day basis a more thorough section of OCD related scenarios of at least equal length to the general section may help elucidate any potential differences.

Additionally there is a need to modify the parenting questionnaire to more directly reflect the mechanisms of transmission outlined in section 1.5.3.2. As research has shown specific modelling of behaviours related to panic and social anxiety can increase these behaviours in offspring (Watt and Stewart 2000) there is a need to address this in the questionnaire, perhaps by asking more direct questions about parenting when OCD is actively interfering with parenting (which will vary in scenario by OCD type). This is also of particular interest as the child copying behaviour, and father's awareness of their potential to do so when exposed to it was a main theme of the thematic analysis and the crux of Bandura's social learning theory (Bandura

1986) which stresses the role of vicarious learning in children learning anxious behaviour. Furthermore in terms of changing a child's perception of danger, transmission of information relevant to anxiety is also important (Field, Lawson et al. 2008) and unmeasured in this study.

Research has shown that a parenting style that is highly critical or emotionally over-involved reflects an emotional quality of child-parent interaction that is associated with, amongst others, increased levels of internalising and anxious behaviours. Retrospective research has also found adults with OCD perceive their parents to be less warm and more rejecting (Lennertz, Grabe et al. 2010) a concept allied with criticism. Whilst fathers in the OCD group did show elevated EE compared to controls, it is interesting that there were no significant correlations between high EE and child distress in either group.

The trend towards OCD fathers showing significantly poorer relationship quality is interesting and indicates that even though OCD fathers spend more time with their children, there may be a different emotional quality to their interactions. Indeed 'closeness' between father and child has been shown in some studies to be protective against the development of anxiety in young adulthood (Summers, Forehand et al. 1998). However it is important to be cautious about these findings, firstly as they are a trend only, and secondly because the FMSS as a tool does not measure attachment formally. It would be very interesting to measure father-child attachment in a follow up study given these findings, and given its proposed role in the child's orientation and approach to novel social situations (Lamb 1980) which is particularly relevant in this study given the findings in COCD discussed below.

4.2 Child functioning

COCD showed no elevated levels of OCD symptomology by parent or child report at a group level, nor increased rates of perfectionism compared to controls. This finding suggests that specific familial transmission of OCD behaviours in young children who have a father with OCD is not evidenced. However given the heterogeneity of the

COCD group in terms of OCD symptoms, ranging from totally absent to being of clinical severity and the small number of children it cannot be known if this is a representative finding, particularly given the self-referring nature of the fathers' sample for this study (discussed further in the Limitations sections 3.10).

COCD show reduced social competency, which relates to items concerning their social participation in organizations, number and frequency of contact with friends and behaviour with others and when alone. They also show elevated levels of Social Problems, which includes difficulties being with others, negative thoughts and feelings towards others, degree to which the child is liked by others and loneliness. Correlations also show that social competence and problems are linked to self-reported anxiety in children in both groups. These findings are of particular interest given the proposed unique role of fathers in preparing children for the social world. It is useful to draw from the model of Bögels and colleagues (Bögels and Perotti 2011) here in understanding these findings. They suggest in the context of paternal social anxiety, children place greater emphasis on signals of (social) danger from the father and will become anxious if the father displays significant anxiety or if the father is very influential in the family unit. They interestingly also theorize that the mother's nurturing role does not negate the effect of anxiety in the father and may in fact strengthen it as they protect the child by reducing exposure to situations which then acts as an anxiety maintenance factor. It seems in the case of OCD (with high comorbidity) in this study, there is a less direct but potentially influential message of social danger being transmitted to children that decreases their competence socially and leads to increased social problems. An alternative or perhaps complementary hypothesis is that as children's lives are restricted by their father's OCD (by not being able to bring friends back to the house, or not being able to play with other children due to increased danger described by Griffiths and colleagues (Griffiths, Norris et al. 2011)) the naturally occurring development of social competency that comes from such exposure is curtailed, leading to a progressive lack of skills over time.

The finding that COCD had elevated rates of internalising problems, general anxiety and separation anxiety and panic is in keeping with the findings of (Black, Gaffney et al. 2003). However their study found elevated OCD rates, which are not seen in this study. Black and colleagues (Black, Gaffney et al. 2003) conclude that in addition to likely genetic influence these increased internalising disorders are likely to be supportive of a 'general stress' effect on the child of living with a parent with OCD, an burden found to be as significant as that of adult relatives of sufferers (Laidlaw, Falloon et al. 1999). In this study, given the high levels of comorbidity with OCD, this general stress is likely to be very high and was reported as such by many fathers who viewed their OCD as being a significant stressor on their children. However a genetic contribution cannot be ruled out as highly significant in several ways. Firstly it could be argued that environments are to some degree 'heritable' as the genotype influences the behaviours that evoke, select and modify features of the environment. In this manner features of parents' personality or behaviour that may be stressful for a child are to a degree genetically influenced. Secondly there is the role of epigenetic effects which are likely be relevant to the impact of psychiatric disorder in families where environmental 'non genetic factors' such as a traumatic life event can cause someone's genes to express differently. Many individuals with OCD report events that in some way 'trigger' the onset of the illness, therefore potentially modifying heritable genetic patterns that increase illness vulnerability. Thirdly heritability of 'general genes' (Plomin and Kovas 2005) that increase vulnerability to a range of difficulties and have a broad influence are another explanation of increased internalising problems in COCD children.

The finding that social problems are associated with anxiety is intriguing. A longitudinal study over 20 years by Burt and colleagues (Burt, Obradovic et al. 2008) which aimed to elucidate the directionality of having social and psychological problems found that "social competence is key in the development of future internalising problems such as anxiety and depressed mood". Many other studies have found links between social problems and future internalising difficulties e.g. Mesman, Bongers et al. (2001) and Hymel, Rubin et al. (2008). Therefore it could be

concluded that the putative alteration in the father's role or family environment as a result of OCD is one contributory factor in reducing social competency in children, which in turn leads to increased internalising problems, particularly with regards to anxiety (which may also be compounded by a 'general stress' effect). The fact that COCD also show elevated levels of separation anxiety and panic also speaks to the argument that they may not be prepared for social aspects of separation from caregivers and functioning confidently socially by themselves.

4.3 Relationships between parenting and child functioning

It is notable that there were no significant relationships for any aspect of child functioning and paternal factors in the OCD group. Fathers with OCD were as involved with their children as control fathers and took significantly more responsibility for them, yet this contact did not appear to serve the proposed socialization function suggested by Ladan (1985). Interestingly there was a trend towards the relationship between paternal engagement and responsibility being associated with overall competency in the control group, which suggests that the nature of the time spent with their children may be different in the OCD group to controls. Indeed, OCD may be impacting on the father's ability to play, which is identified as key in building social competency and coping with separation from caregivers (Bögels 2006).

A lack of relationship between parenting behaviours and child anxiety in either group suggest that for this sample at least, anxiety is not related to how they are parented in any direct manner. Therefore there is little support from this study for exposure to different parenting behaviour from fathers with OCD being part of a developmental route to anxiety or OCD itself as suggested by Salkovskis, Shafran et al (1999). The Challacombe and Salkovskis (2009) study found a relationship between observed parenting behaviours and child anxiety, but not self-reported parenting behaviours. Therefore, it is possible that reporting biases in the OCD group may have influenced the findings in this study, and future research should include observations of parenting directly. Equally the finding that parenting behaviour is

not associated with anxiety in children is an important null result, as the majority of the studies that find a significant association between the two are retrospective in nature, asking adults to recall their upbringings, a methodology subject to significant bias.

The finding of no association between High EE in fathers and anxiety problems in children is in keeping with the OCD mothers' study, which found no associations between self or parent report and high EE, although, did find a relationship between high maternal EE and observed child anxiety in an observation task (Challacombe and Salkovskis 2009). Elevated general difficulties in COCD therefore are likely to be associated with other factors unmeasured by this study. As there are multiple stressors in families where a member has OCD, it is perhaps not surprising the burden upon children is one factor contributing to increased emotional difficulties as outlined in the study by Griffiths, Norris et al. (2011). It is also important to note that the literature suggests a stronger relationship between a specific type of EE (emotional over-involvement, EOI) and anxiety. This study did not have an adequate sample size to be able to examine this relationship, nor look for increased rates of EOI in the OCD group, due to inadequate cell counts.

A lack of relationship between quality of relationship and child anxiety in both groups of fathers indicates that there is little support in this study for the proposed role of the father-child relationship in helping children cope with anxiety and protect them from developing anxiety in the future as proposed by Lamb (1980). However, given that this study did not mention attachment, only a proxy for attachment as outlined in section 3.6, no strong conclusions in either direction can be drawn from this null finding.

4.4 Clinical Implications

This study has a number of important clinical implications. Firstly, COCD have impaired general functioning and higher levels of anxiety that are unidentified in most families, and children are not known to their Child and Adolescent Mental Health Services. In the course of this study, two referrals of COCD children to local services were facilitated. This suggests that a vertical integration approach, where family level assessment and intervention is practiced may be appropriate from families where the father has OCD of the severity seen in this study, particularly as there is an obligation to consider the needs of dependent children in any adult mental health setting (Royal College of Psychiatrists 2002). It may be important to emphasize to fathers in the engagement phase of treatment that their children's problems do not appear to be related in any specific way to their parenting despite their perception of this being the case, rather there may be a general negative effect of living with OCD on the whole family that could be helped by treating the whole family alongside individual CBT based treatment for the parent. A systemic treatment approach may also help fathers develop more positive relationships with their children and become less critical of them, two factors that this study did highlight as a difference between OCD and control fathers. At an individual level for the COCD, their social deficits may be helped by social skills work in addition to family intervention, which may serve a preventative intervention to decrease future internalising and anxiety problems and increase social integration.

Finally there is a need amongst mental health professionals and social workers to understand the nature of OCD in parents, particularly fathers who in this study were experiencing highly distressing intrusive thoughts about harming their children and family. This had prevented most of them from seeking professional help due to fear of their children being removed from their care, or social services involvement. Additionally the levels of shame associated with these thoughts (particularly when they were sexual in content) highlights the need for particular knowledge and skills in assessing these fathers so that they feel comfortable enough to disclose the

nature of their most distressing thoughts. It is notable that in the course of this research many fathers had never revealed the content of their intrusions to anyone before, and expressed their relief in doing so in a contained and non-judgmental (albeit research) context.

4.5 Limitations and directions for future research

A study of this nature, where links are sought between a range of variables that are essentially predictors, is best served by regression analysis. However due to extensive recruitment difficulties, large enough Ns were not possible to make regression feasible. The scarcity of fathers with OCD in major mental health facilities identifiable as a recruitment strategy and in general was curious and the answer could be twofold. It is well known that men with OCD are less likely to marry and have children (Castle, Deale et al. 1995); therefore this scarcity could be a genuine reflection of reality. However given the nature of the participating father's obsessional thoughts (the majority concerning harming their children or family) it is also possible they stay away from statutory services through fear of negative consequences. This may explain why the majority of OCD fathers were recruited via adverts rather than through mental health services.

Additionally it is possible that the burden of taking part in research for the few that were undergoing treatment was prohibitive for these fathers. This is supported by the fact that the one father who was recruited via an IAPT service dropped out of the project. In being able to run regression analysis it would also be desirable to have measures of maternal factors to see what proportion of variance in COCD scores is accounted for by each parent as in the Kilic studies (Kilic, Ozguven et al. 2003; Kilic, Kilic et al. 2011). Given the fathers group also have significant levels of comorbidity (although similar to those identified in the literature e.g. by Fireman, Koran et al. (2001) this type of analysis would also allow more sophisticated examination of the role of comorbidities in child outcomes. Another route to teasing apart the effects of

comorbidity would be to examine a group of fathers with moderate to severe depression with the same measures and compare results to the OCD fathers.

A related issue is the recruitment of the participating fathers in terms of volunteering. Informal conversations at first contact revealed that the reasons fathers took part in the study fell into two groups: 1. Those who believed OCD was genetic and little to do with parenting 2. Those who felt their OCD had developed as a result of their own parenting and were concerned the pattern would repeat in the next generation. Whilst both groups were concerned about their children developing OCD, these ideas are likely to have influenced their own perceptions of parenting behaviour.

Thus, for future research a different recruitment strategy may be necessary to increase numbers, reduce potential recruitment biases and address the limitations of the generalisability of the findings from this study given the size and nature of the sample. This may include giving parenting questionnaires to all fathers who have children in an adult service, particularly given there is an obligation to consider the needs of dependent children in any adult mental health setting (Royal College of Psychiatrists 2002). Given the researcher had to inform two fathers of clinical level symptoms in their children who were not already being seen by CAMHS, screening may also expedite identification of unmet clinical need in these children. Additionally, given this small study has found that there does not appear to be a clear relationship between parenting behaviours and psychological difficulties in offspring, a recruitment campaign that gave this information may reduce concerns of fathers that research is attempting in some way to criticize their parenting and they may be more conducive to taking part.

There are also limitations of the measures used in the study that should be addressed. Firstly some of the younger children's ages placed them below the norms for the MASC, and t-scores were calculated for the lower end of the normed population. Secondly the content of some of the child questionnaires, particularly

the CRAS, which introduces complex ideas of responsibility for actions and thoughts may not allow for levels of developmental change even within the study age range given the complexity in formation of responsibility beliefs and the notion of 'being responsible' (see the work of Such and Walker (2004)). As fathers would have had to help fill in these items for younger participants, it cannot be certain they did not influence responses in any way despite instructions not to do so.

In terms of measuring parent behaviour, questionnaires are always subject to a range of potential biases that may influence responses. An observational component that allowed the manipulation of parenting scenarios and observed actual behaviour would have enriched the characterization of parenting as used in the Challacombe and Salkovskis (2009). In addition, the modified Zabin and Melamed questionnaire (Zabin and Melamed 1980) was limited in terms of its scope in assessing relevant parenting behaviour, particularly in reference to the OCD specific questions as outlined above in section 3.6. As fathers highly endorsed the item concerning the transmission of OCD from learned behaviour on the 'parenting perception questionnaire', and spoke about the effect of their own parents on the development of their OCD, a more in depth and sophisticated measurement of parenting is warranted.

It is particularly important to think about how to measure accommodation of OCD by the father and in the family. There may be significant difference on parenting and impact for those who are able to have insight and compartmentalize their OCD from family life, and those who cannot and may even involve their children in their rituals (as reported by one father in this study voluntarily). Given that the fathers in this study were of a majority rumination type of OCD it would also be interesting to learn how they were able or unable to manage their OCD and family life in more systematic detail. Difficulties in blinding group allocation in the FMSS EE measure is also a consideration given that this revealed a group difference. It was particularly difficult to blind as OCD fathers spontaneously mentioned their OCD in the task. It is

unclear how this could be changed, as directions that include not mentioning their diagnosis are likely to invalidate the measure.

A further limitation is that the mother/other caregiver's parenting and psychopathology was not investigated. This is particularly relevant given the hypothesized role of the mother in relation to father's anxiety proposed by Bögels and Perotti (2011), and in accounting for variance in child outcomes such as in the Kilic studies (Kilic, Ozguven et al. 2003; Kilic, Kilic et al. 2011). A more detailed analysis of co-parenting in relation to anxiety in the father would be of huge interest, and may also have profound implications for treatment of these families.

The study indicates some interesting areas for further research. Given the scarcity of literature examining the effect of paternal mental health on children, this study indicates the need to conduct more research in this area, particularly as the effects do appear to be different to those of disorder in the mother. It would be interesting to examine the effect of other anxiety disorders and depression in fathers and whether the functional impairment in OCD makes the effect particularly pronounced in offspring. Perception of parenting from the child's perspective is also missing from this study and would add an important dimension to our understanding. Qualitative research suggests children do perceive parental OCD to have a significant effect on their lives, and may have an insight that is impaired in parents whose perceptions are potentially more coloured by their own beliefs and wishes.

The poorer social competence and social deficits in the COCD group is particularly intriguing, and with the advent of new theoretical models to test, it would be important to examine the effect of a range of anxiety disorders in fathers on offspring's social functioning in a significantly larger sample. If social competency is indeed a precursor of internalising difficulties, then early social skills intervention for these children may be a novel preventative intervention.

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